

Libraries, Telecentres, Cybercafes and Public Access to ICT: International Comparisons

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Ricardo Gomez, University of Washington, USA

The goal of this book is to portray the landscape of users and uses of public access to computers and the Internet in developing countries around the world. In 2007-2010, the Technology & Social Change Group at the University of Washington conducted a ground-breaking study in 25 countries, the Landscape Study, to better understand who uses information and communication technologies (ICT) in public access venues and how. Each country conducted a discrete section of the study and shared a report. All the data was then collated and analyzed. This book attempts to put all the pieces together in order to make comparisons and cross-references for further research.

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Ricardo Gomez, University of Washington, USA

Kemly Camacho, Cooperativa Sulá Batsú, Costa Rica

Who are the customers of public access venues, where do they come from, and what are their needs? In order to better understand the situation – success or failure – of public access venues, and how to move forward with policies, funding, and further research, it is crucial to better understand who uses public libraries, telecenters, and cybercafés.

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Elizabeth Gould, University of Washington, USA

Ricardo Gomez, University of Washington, USA

In the previous chapter, we explored who are the users of public access venues: for the most part, they are young, in school or possess formal education, and from lower- or middle-income levels. Given the user population, our next question was, how do libraries, telecenters, and cybercafés successfully meet the information needs of their users? Three steps are required to serve a population’s information needs: (1) understand the population’s culture, (2) include someone in the decision-making process who understands the population, and (3) receive direct input from the population from project inception. Users’ input enables and involves them in accessing information and solving their information needs in ways that are personally relevant (Bridges.org, 2009). The operators of public access venues play a key role in understanding and meeting the local population’s information needs.

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Ricardo Gomez, University of Washington, USA

Elizabeth Gould, University of Washington, USA

Having explored typical public-access-venue users (male or female, young, moderately educated, lower-middle income level, and most likely in an urban setting) and how libraries, telecenters, and cybercafés can effectively meet these users’ information needs, we now look beyond the critical elements of infomediaries and community engagement to determine what prompts users to use one venue over another. For public access ICT to make a contribution to human development, public access venues must be trusted and used.

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“Free” Service or “Good” Service: What Attracts Users to Public Access Computing Venues?	43
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Melody Clark, University of Washington, USA

Ricardo Gomez, University of Washington, USA

There is a strong tradition in libraries around making their services free to all users. At the same time, cybercafés tend to charge user fees to drive their business, while telecenters fall somewhere in between: some charge a fee, some are free. When a public access venue charges a fee for use of ICT, does the fee hinder use, especially for users with lower income? Are other factors, such as relevant content and digital literacy of staff, more important in determining whether or not the venue is used, especially by underserved communities? In this chapter, we discuss three factors that emerged in this study as important drivers for the use of ICT in public access venues: affordability and cost of ICT use in public access venues, availability of relevant content in local languages, and the digital literacy and helpfulness of venue staff. We examine how these indicators influence user attitudes toward, and ultimately use of, ICT in cybercafés, libraries, and telecenters.

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Gender and Public Access ICT	51
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Allison Terry, University of Washington, USA

Ricardo Gomez, University of Washington, USA

Studies show that due to systemic gender biases in the use of and access to ICTs and their applications, as well as socio-cultural norms that position computing as a predominantly male activity, women in

developing countries are more likely than men to face barriers to reaping the benefits of ICTs for their personal and community development. Gender analysis “asserts that power relations in class, race, ethnicity, age, and geographic location interact with gender, producing complex and hidden inequalities that affect social change” (APC WNSP, 2005). A review of recent literature on gender and ICT, and the results of the Landscape Study, suggest that there are both personal and collective benefits to women through the use of ICT, as well as barriers that prevent marginalized groups in society, and women in particular, from realizing these benefits. What are these barriers? What benefits does ICT offer women? Throughout this chapter, we will explore these barriers and benefits through examples drawn from our findings in the Landscape Study, embracing a cultural approach in analyzing the ways in which women transform their lives through the use of ICT, with a particular emphasis on ICT use through public access venues.

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Libraries play a central role as venues that offer public access to information. Increasingly, libraries in developing countries are offering access to computers and the Internet, as well as to books and other types of information services and resources. Given the relatively scant literature on public access to ICT in libraries in many countries, we explore in this chapter the specific challenges libraries face in the countries we studied in the Landscape Study. How are public libraries serving the information needs of marginalized communities in developing countries? How is access to new information and communication technologies (ICT) changing the landscape of public access to information? How can libraries better collaborate with other types of venues (such as telecenters and cybercafés) that offer public access to computers and the Internet? These are some of the questions that we seek to answer in this chapter.

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User information needs vary by geographic location as well as by economic and social standing, among other factors. These factors drive the format, content, currency, and language in which information is produced and presented. Information needs of users of ICT in public access venues are satisfied in a variety of manners. The question arises as to how public access venues determine information needs in a community, and how best to satisfy those needs. There is no lack of information. What needs to be established is where do people presently get information, and if ICT can help to service their needs in a better way. In this chapter, we consider what types of information users need, and what they seek when they go to public access venues to use ICT.

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<i>Ricardo Gomez, University of Washington, USA</i>	

Throughout this book, we have detailed the profile of a public access venue user, discussed the role of venue staff in public access venues, identified the critical role that trust plays in use of public access venues, and demonstrated some barriers to use of venues, as well as explored how gender is situated in the ICT world. In this chapter, we will explore and seek to answer the question: what are the common factors that contribute to the success of public access ICT centers, especially in underserved communities?

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Ricardo Gomez, University of Washington, USA

This chapter describes how the global Landscape Study was designed and carried out. The Landscape Study informs all the findings and results presented in this volume. We describe here the criteria for the country selection and selection of local research partners in each country, the procedures and instruments for data collection, the way we analyzed the data, and some of the limitations of the study.

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Adrián Rozengardt, University of Washington, USA

Susana Finquelievich, University of Washington, USA

Argentina is one of 25 countries participating in this international study that was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The study assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes. The study placed an emphasis on public and popular libraries, private information venues (cybercafés and parlors), and social information venues (government and community-associated public information venues). The primary intent was to examine the information needs of underserved communities, public access to information and communication venues, and the role of ICTs in Argentina.

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Marta Voelcker, Fundacao Pensamento Digital, Brazil

Gabriel Novais, SRI International, USA

Brazil is one of 25 nations to participate in a study about the public's ability to access information and communication technologies through public access venues, such as libraries, telecenters, and cybercafés. The study was organized by the Technology & Social Change Group (TASCHA) at the University of Washington. In recent years, Brazil has undertaken substantial efforts to provide the public with access to information and communication technologies (ICTs) as a way to foster its social and economic development, which is impeded by widespread poverty and economic inequality. A national shift towards an information-based society is occurring in both government and civil society. This movement includes

initiatives to promote ICT access in underserved communities, lower tax rates to reduce computer prices, and investments in telecenter and school information technology laboratories through national policies. In addition, an entrepreneur-driven boom in cybercafés — mostly located in low-income neighborhoods — has altered the Internet access landscape in the country (Santos, 2008, p.35).

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Kemly Camacho, Cooperative Sulá Batsú R.L., Costa Rica

Costa Rica has a long history of democracy, and a constitution that protects the social rights of its citizens. The government, commercial, and service sectors function under a well-established economic model and constitutionally declared universal access to services for the population. Historically, Central and South American nations have sometimes undergone rapid social and political changes, and the changes have occasionally been the result of armed conflict. While Costa Rica has had an active political history, it has seldom experienced the degree of volatility felt in similar countries.

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Luis Fernando Barón, Icesi University, Colombia

Mónica Valdés, Fundación Colombia Multicolor, Colombia

Geography and culture make Colombia a rich and diverse country. Nevertheless, this country has a long history violence related to politics, insurgency, paramilitary groups, and drug trafficking. In spite of important human developments in the last decade, poverty, exclusion, and governability rates are still critical in this South-American country. These country characteristics have been critical to the way people communicate and access information, and they have also marked the way in which Colombians use and acquire information and communication technologies (ICTs).

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Francia Alfaro, Cooperativa Sulá Batsú, Costa Rica

José Pablo Molina, Cooperative Sulá Batsú R.L., Costa Rica

Kemly Camacho, Cooperative Sulá Batsú R.L., Costa Rica

The Dominican Republic is a small country in the Antilles Archipelago with a population estimated to be approximately 9.6 million, most of whom are under the age of 35. Nearly half of the population lives in poverty, and the number has grown steadily since 2002. The extensive poverty and a concentration of young citizens hold broad national implications. With so many of the population being both young and poor, a higher social vulnerability is problematic regarding such issues as child labor, commercial sexual exploitation and abuse, school desertion, homelessness, and addictions. The situation becomes even more complex as these problems further increase the country's poverty level, which in turn makes even more people vulnerable. This resulting cyclic evolution creates a condition that rapidly erodes the entire national political, economic, and social structure.

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Katia Sotomayor, AED, Peru

Juan Fernando Bossio, CEPES, Peru

Ecuador is a small, sparsely populated country in northwestern South America with an ethnically diverse population estimated to be 13.8 million. The land area covers 256,371 sq km, and the diverse geography includes coastal plains, dense Amazon rainforest, and rugged highlands in the Andes Mountains. The Galapagos Islands in the Pacific are also part of Ecuador. The country is bordered on the north by Colombia, by Peru on the east and south, and on the west by the Pacific Ocean.

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Melissa Arias, Cooperative Sulá Batsú R.L., Costa Rica

Kemly Camacho, Cooperative Sulá Batsú R.L., Costa Rica

The Republic of Honduras is a small semi-tropical country in Central America with a modest economy based largely on agriculture and, to a lesser degree, on import/export trading, financial services, and a small amount of manufacturing. Approximately 92% of the population is Mestizo, which is defined as a mixed ethnicity of European and indigenous origins. The remaining 8% of the population is composed primarily of indigenous groups, including the Lencas, Garífunas, Chortis, Payas, Tolupanes, Misquitos, and Tawahkas. Spanish is the official language, but five indigenous languages also are spoken.

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Juan Fernando Bossio, CEPES, Peru

Katia Sotomayor, Academy for Educational Development, USA

Peru is located in western South America where it is bordered on the north by Ecuador and Colombia, on the east by Brazil, on the southeast by Bolivia, on the south by Chile, and on the west by the Pacific Ocean. With a land area of 1,285,220 sq km and an ethnically diverse population estimated to be more than 28 million, it is the fourth most populous country in South America. The diverse geography includes a central mountain range, dense rainforest, and a narrow coastal plain.

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Ananya Raihan, D.Net, Bangladesh

Access to information worldwide changed dramatically with the widespread acceptance of the Internet and when new types of public access information venues using ICTs (Information and Communication Technologies), such as telecenters and cybercafés rapidly emerged. These changes in information access are creating a significant effect on the population of Bangladesh.

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Bibhusan Bista, SAP International, Nepal

The Republic of Nepal is a landlocked country in South Asia bordered by China to the north and India to the South. The modern Nepali state was formed in the mid-eighteenth century and existed as a kingdom until 2006 when it transformed into a federal democratic republic. With a population of 28.3 million, Nepal faces acute challenges with regard to development. About 31% of the population lives in deep poverty on an income equivalent to US\$1.00 per day. With a literacy rate of only 56%, access to critical information related to education, health care, and employment has always been a matter of utmost importance for the majority of the people in Nepal.

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IDEACORP, Philippines

Maria Juanita R. Macapagal, IDEACORP, Philippines

Mina Lyn C. Peralta, IDEACORP, Philippines

The Republic of the Philippines is composed of 7,107 islands in the western Pacific region of Southeast Asia and is surrounded by the Philippine Sea, the South China Sea, and the Celebes Sea. The United States gained control of the Philippine Islands following the Spanish American War in the late 1890s and granted the Philippines independence in 1946.

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Ibrahim Kushchu, Mobile Government Consortium International, UK

In the past several years, the issue of providing equitable access to information has received significant attention by various governments as an effective means to bridge the digital gap in their respective countries. An information-based society can become an important aid when pursuing national development goals. This current study was directed toward issues related to public access to information in Malaysia and placed an emphasis on information and communication technologies (ICTs) and how the underserved communities in the country benefit from various ICT-based services.

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Ibrahim Kushchu, Mobile Government Consortium International, UK

Indonesia is the largest archipelago and the fourth most populous country in the world. The nation is composed of more than 17,000 islands and has a population of 220 million. About 42% of the people live in urban areas, and 29% of the total population is under the age of 14. Education is compulsory for children between 6 and 15 years of age, and the literacy rate is said to be 92%.

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Andrew P. Beklemishev, IDC Corporate, USA

The Republic of Kazakhstan is the ninth largest country in the world; however, it has a population of only 15 million. Kazakhstan is roughly the size of Western Europe and had been the second largest republic of the former Soviet Union until gaining independence in 1991. The nation has subsequently experienced enormous political, economic, and social changes. The national economy relies heavily on the extensive natural wealth in oil, natural gas, and metal ores, including large deposits of uranium. The worldwide markets for these products produced a growth in the GDP of nearly 10% each year in 2002 through 2006, but the economy was sharply affected by the worldwide financial liquidity crisis in 2007-2008.

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Tracey Naughton, Socio-Economic Consultant, Mongolia

Lkhagvasuren Ariunaa, Intec Company, Mongolia

The Kyrgyz Republic is a landlocked country in central Asia and borders Kazakhstan, Uzbekistan, Tajikistan, and China. The country has a land area of 196,500 sq km but has only five million people. Kyrgyzstan declared its independence in 1991 after having been a republic in the former Soviet Union. The population is heavily concentrated in just a few scattered localities, and one third of those people live in urban communities. More than 64% of the total population and more than 50% of the rural population live in deep poverty. Nevertheless, the population in general is educated and literate, and the existing social capital is relatively high. The people with the higher literacy rates tend to be those who speak the Kyrgyz and Russian languages, and this segment of the population displays a strong interest in information and communication technologies (ICTs).

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Tracey Naughton, Socio-Economic Consultant, Mongolia

Ondine Ullman, Educationalist, Mongolia

Pact Mongolia conducted a study into Public Access to Information and Communication Venues in Mongolia between January and August 2008. This project was conducted under the auspices of the University of Washington, with Mongolia as one of 25 countries studied. The research examined public access to information venues and the role of information and communication technologies (ICTs), with a specific focus on underserved segments of the population.

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OPINIA and Independent Sociological and Information Service, Republic of Moldova

This paper investigates public access to information venues in the Republic of Moldova. The paper was written as a component of the 25-country Public Access to Information and Communication Venues research project sponsored by the University of Washington, USA. The project focuses specifically on

the information needs to underserved communities, the role of ICT, and public access to information and communication venues in Moldova. It aims to provide a detailed analysis of these venues based on data generated through surveys conducted among the targeted users and operators, in-depth interviews, and focus groups discussions with key informants, site visits, and analysis of secondary data, including relevant country and sector studies.

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Institute for Polling and Marketing (IPM), Georgia

Georgia was a key republic in the former Soviet Union until gaining independence in 1989. Like many of the other former component republics, Georgia then faced an uncertain future and entered a lingering state of political, social, and economic turmoil. Successive government administrations have struggled to overcome these issues and have instituted a number of reforms, but so far, the reforms have experienced only limited success. Many of the reforms directly affect public access to information and communication technologies (ICTs).

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Leelangi Wanasundera, Centre for Women's Research, Sri Lanka

Sri Lanka is making a concerted attempt to move into a knowledge-based economy. As an important aspect of this strategy, the government is using ICT as a lever for “reducing poverty, promoting growth, and fostering social integration and peace.” Sri Lanka has faced protracted political and ideological conflicts for twenty-five years that, at times, have turned violent, but the people and the economy have been resilient, even though progress has often been slow.

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Alan Finlay, Open Research, South Africa

Michael Jensen, Independent Consultant, South Africa

Mark Neville, Radian, South Africa

Rasagee Pillay, Infowizz, South Africa

South Africa has long enjoyed a level of national wealth that evolved largely through the development of its enormous natural resources. That financial foundation has been well supported by an aggressive agricultural base and the ongoing emergence of South Africa as a prominent industrial nation in Africa. A valuable outgrowth of this combination has been South Africa's particularly robust and well-developed media and information sector, which is protected by strong constitutional provisions. Although the overall national economic position is secure and growing steadily, striking contrasts linger within the social sector.

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Tina James, Icteam Consulting, South Africa

Milton Louw, Polytechnic of Namibia, Namibia

Namibia is an independent republic located along the Atlantic coast of the far southwestern reaches of Africa. It is bordered to the north by Angola, to the northeast by Zambia, to the east by Botswana, to the south by South Africa, and to the west by the Atlantic Ocean. The land area covers 318,260 square miles is divided among 13 provincial regions, and has a population of about 2.1 million. Namibia has the second lowest population density of any country in the world. Eighty percent of the population is Christian, and the rest observe indigenous faiths. Seven percent of the people speak English, which is the official language, while 60% speak Afrikaans, and 33% speak German.

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Public Access ICT in Uganda	466
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Ndaula Sulah, UgaBYTES Initiative, Uganda

Uganda is a landlocked nation in central equatorial Africa, and for many years has been torn by tumultuous political, social, and economic turmoil. There have been violent armed conflicts and governmental shifts that were marked most prominently by the horrific reign of Idi Amin, who was ousted in 1980. Throughout history, epidemics and health issues have devastated the population, and Uganda still faces major problems with HIV/AIDS and sleeping sickness. Outbreaks of Ebola have devastated untold numbers of people.

Chapter 33

Public Access ICT in Algeria	490
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Yahia Bakelli, University of Algiers 2, Algeria

Algeria is one of 25 countries participating in this study, which was designed to assess the public access to information and communication venues, and also to examine the role of information and communication technologies (ICTs) across the nation's overall economic, political, and regulatory framework. The study placed an emphasis on the information needs of underserved groups and communities.

Chapter 34

Public Access ICT in Egypt	510
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Nayer Wanas, Electronics Research Institute, Egypt

Egypt is a vibrant modern nation and has been a major contributing influence on the world scene for thousands of years. In addition to its prominent placement in the northeastern reaches of Africa, and its historical background there, Egypt harbors a strong relationship among the Middle Eastern Arab nations, as well as with its neighboring countries in North Africa.

Chapter 35

Public Access ICT in Turkey	534
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Ibrahim Kushchu, Mobile Government Consortium International, UK

The Republic of Turkey is a modern, dynamic country in southwestern Asia with a broad-based, healthy economy that supports a population of just over 70 million. The country spans 780,500 sq km (slightly larger than Texas) and is bordered by Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Iran, Iraq, Syria, the Black Sea, the Aegean Sea, and the Mediterranean Sea. The land is mostly mountainous with a narrow coastal plain and a central high plateau. The climate is temperate and more than 53% of the land is said to be arable.

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Preface

INTRODUCTION

Computers and the Internet have transformed the way we live, work and play. Marginalized communities around the world don't always have adequate access to information and communication technologies (ICT), and increasingly go to public access venues such as libraries, telecenters and cybercafés to use computers and access the Internet in order to meet their information and communication needs.

How can you make venues that offer public access to computers and the Internet actually work to serve the needs of marginalized populations in developing countries? If access to information contributes to improving the quality of life of marginalized sectors of the population? How do you support venues that better enable equitable access and effective use of ICT in support of community development?

This book presents results of a research process that began three years ago to answer some of these questions. . During 2007-2009, a group of researchers in 25 countries around the world, led by a team in the Technology & Social Change Group (TASCHA)¹ at the University of Washington Information School, studied libraries, telecenters, and cybercafés in 25 developing countries around the world. While much research has been done about telecenters for development, about libraries and information needs of underserved communities, and, to a lesser degree, about cybercafés and their contribution to community development, the research results summarized in this book constitute the first attempt ever to systematically understand the phenomenon of public access computing across different types of venues such as libraries, telecenters and cybercafés, and across multiple developing countries around the world.

The results are promising: there is a vibrant ecosystem of organizations and initiatives that support public access computing in all the countries we studied. Libraries, telecenters, and cybercafés all play an important role in offering access to, and use of, computers and the Internet, especially to people for whom these resources would otherwise be difficult or impossible to reach. Each type of venue has something special to offer, and the idea of working in closer collaboration with each other is one of our greatest recommendations. When libraries, telecenters, and cybercafés work together to share their specialized knowledge and resources, they can make a huge difference to the well-being of underserved populations.

The role of government in its support for public access computing is also different for each type of public access venue: the State is a key *provider* of public access computers in public libraries, which are, for the most part, funded by the government (national, regional or local), and provide access to information as their core mission; the addition of computers and the Internet to libraries that are already stretched for resources presents new challenges, and also new opportunities. With telecenters the best role of the State may be as *enabler* of public access. In addition to ensuring appropriate telecommunications infrastructure to reach marginalized and remote areas, the State can help enable local organizations

to provide effective access to ICT by means of grants, subsidies, supportive regulations, training and networking opportunities, etc. In some cases, the State has also been a direct provider of ICT access through local telecenters, but government-run telecenters are frequently less effective than those run by local organizations (with some notable exceptions). Finally, through incentives, regulation, startup funds, subsidies, etc. the State can be an active *promoter* of cybercafés set up and operated by local entrepreneurs as a business, in many cases a sustainable one. The following figure summarizes the main types of public access computing initiatives, and the role of the State in supporting them:

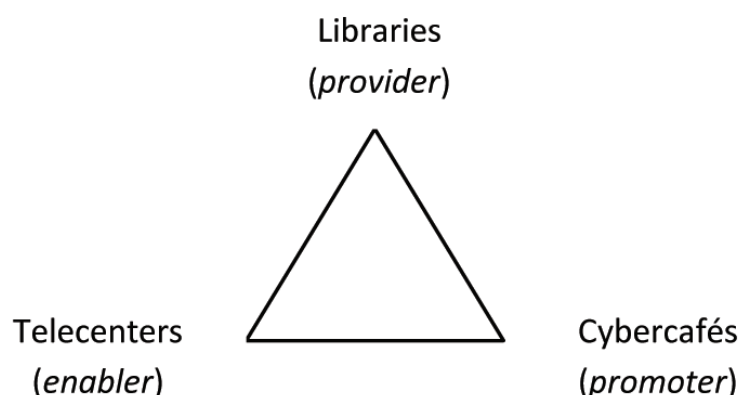
In the ecosystem of libraries, telecenters and cybercafés, this book offers a picture of public access to information and communication technologies in each of the 25 countries studied, and a comparative analysis of ten topics across all 25 countries. These are conversation starters, as well as pointers for further research informed by this broad-based study. The list of topics in the comparative analysis is not exhaustive, and we invite further analysis using the data collected for this study. The country chapters included in this volume are valuable sources, as are all the detailed country reports prepared by each local team using a common template, all of which are available online.²

The book is organized as follows: Part I offers nine chapters with analyses of different themes across all 25 countries, and a chapter with a detailed discussion of the research methods, including the country selection rationale. Part II offers detailed country reports for each one of the countries included in the study. While earlier versions of each one of the papers may have been presented at conferences or published in academic journals, and other analyses have been conducted that are not included in this volume, we bring the most salient of them together here to provide *a unified point of reference on the landscape of public access computing in 25 developing countries around the world*.

SECTION 1: COMPARATIVE ANALYSIS OF PUBLIC ACCESS TO ICT IN 25 COUNTRIES

Chapter one offers an overview of the distribution of each type of venue, and a comparison of the strengths and weaknesses of each type of venue and how they complement each other. While public access computing is primarily an urban phenomenon, there are about three times as many cybercafés

Figure 1. Public access triangle and the effective role of the state



as there are libraries and telecenters combined. This numerical predominance of cybercafés in urban areas needs to be taken into account when reading the remainder of the book. Chapter two looks at the kinds of people who use libraries, telecenters and cybercafés: users are mostly young people under 35. They generally include both men and women, with some variations across countries and across venues, and almost always users have some formal education, they come from lower and middle-income levels, and they are living in urban areas. Chapter three looks at the importance of the people who help users in public access venues: owners, employees or volunteers that help users identify, find, and use the information they need. We call these intermediaries between people and information “infomediaries,” and we analyze their critical role in the success of the public access venues.

Chapters four and five discuss users’ perceptions of public access venues. When analyzing trust, in chapter four, we describe safety and security, relevance, reputation, and “cool” as factors that affect users’ perceptions and preferences to visit one venue over another. This is followed, in chapter five, by a discussion of the role of fees for service, and how these fees influence the use of public access computers in the countries we studied. Users’ perceptions of relevance of content, and users’ perceptions of the disposition of the operators to help them, play a far more important role than the existence of user fees. In other words, free access to services does not appear to be a determinant factor driving users to public access computing venues.

Chapter six goes on to analyze the experience of public access computing from a gender perspective, and identifies benefits and barriers that affect women in particular in their use of information and communication technologies. Chapter seven discusses specific challenges libraries faced in terms of broad use of digital technologies, while chapter eight analyzes strategies for understanding and better meeting the information needs of the populations served by public access computing initiatives.

Chapter nine offers a synthesis of factors that contribute to the success of public access computing in the countries we studied. These success factors include (1) understanding and taking care of local needs first; (2) building alliances with other venues; (3) collaborating with other media and community services; (4) strengthening sustainability; and (5) training infomediaries and users in digital literacy.

Finally, chapter ten describes the research methods employed in this large-scale international study. It describes the process to select the 25 countries included, the conceptual framework employed in the study, the data collection tools and methods, the way data was analyzed, and the mechanisms used to strengthen data quality and credibility of findings. We also offer some lessons we learned in conducting large-scale, collaborative research projects of this nature.

SECTION 2: PUBLIC ACCESS ICT IN EACH COUNTRY

Section 2 of this book offers detailed descriptions and analyses of the public access computing landscape in each of the 25 countries studied, grouped by geographic region: Latin America and the Caribbean (including Argentina, Brazil, Costa Rica, Colombia, Dominican Republic, Ecuador, Honduras, and Peru); Asia and Eastern Europe (including Bangladesh, Nepal, Philippines, Malaysia, Indonesia, Kazakhstan, Kyrgyzstan, Mongolia, Moldova, Georgia, and Sri Lanka); and Africa and the Middle East (Algeria, Egypt, Namibia, South Africa, Turkey, and Uganda).

This publication is based on research funded by the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation. This work was only possible thanks to the dedication of

many people: research teams in each country that contributed ideas, conducted fieldwork, and produced fantastic results. Faculty, researchers, and students at the iSchool and the Technology & Social Change Group (TASCHA) revised, organized, and analyzed large amounts of mostly qualitative data. Peers and colleagues offered precious feedback and guidance to help strengthen the analysis and results. But most importantly, we thank the people who use computers in public access facilities around the world: without their input and knowledge, this research would not exist. We want to share these results with the hope that we will contribute to improving the quality of life of the marginalized sectors of society, those who use public access computing as a lifeline that connects them to what they need in the information society.

Ricardo Gomez

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November 2007- November 2010

ENDNOTES

¹ Formerly known as Center for Information and Society, CIS.

² All detailed country reports are available at <http://tascha.uw.edu/research/landscape-study/>

Section 1

The Public Access Landscape Around the World

Chapter 1

Libraries, Telecenters and Cybercafés: A Comparison of Different Types of Public Access Venues

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ABSTRACT

The goal of this book is to portray the landscape of users and uses of public access to computers and the Internet in developing countries around the world. In 2007-2010, the Technology & Social Change Group at the University of Washington conducted a ground-breaking study in 25 countries, the Landscape Study, to better understand who uses information and communication technologies (ICT) in public access venues and how. Each country conducted a discrete section of the study and shared a report. All the data was then collated and analyzed. This book attempts to put all the pieces together in order to make comparisons and cross-references for further research.

In order to understand the implications of this study, it is important to understand the context in which it was conducted. Consequently, this book begins with a chapter that explores the differences and similarities, strengths and weaknesses, of each of the three different types of public access venues studied: public libraries, telecenters, and cybercafés. To begin, the following descriptions define each type of venue in the study:

Public Library: a venue that is open to the general population, funded by the government, and intends to meet a local community's information needs as a public service; while all libraries offer books and printed materials, public libraries in developing countries are increasingly also offering access to computers and the Internet.

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Telecenter: a nonprofit venue open to the public, which offers ICT as part of its services, or other activities intended to help community development. It may or may not charge a fee.

Cybercafé: also called an Internet café, is a for-profit venue that is open to the public, offers computer access and related services, and generally charges a fee. A key difference from the telecenter is that cybercafés do not necessarily intend to support community development (although this may happen as an unintended consequence).

Although this study focused on public access venues, it includes cybercafés because they are open to the public even though they generally charge user fees. Excluded from this study are schools and specialized libraries that are not open to the public as they limit access to students, faculty, and staff only.

DISTRIBUTION AND LOCATION OF TYPES OF VENUES

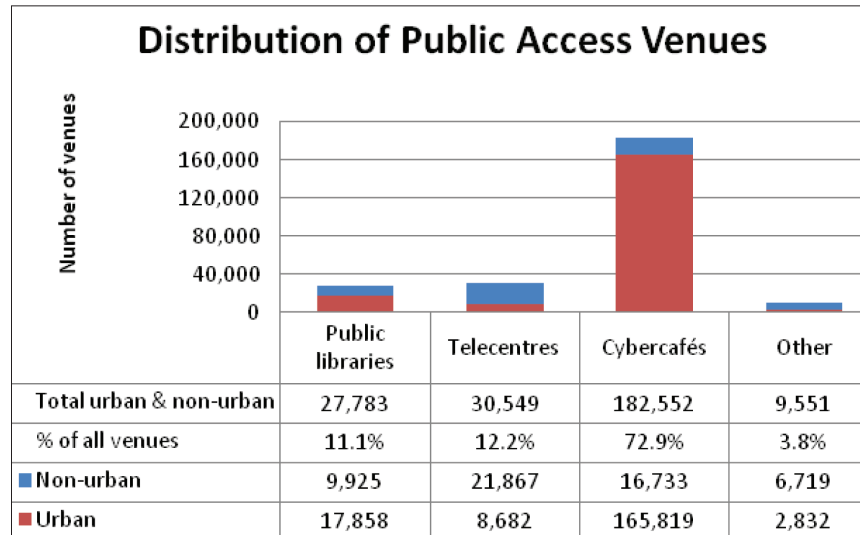
To accurately describe the various strengths and weaknesses of the different types of public access venues, a broad understanding of the entire picture of the public-access-venue landscape is important. It is significant to note which types of venues are available, as well as in what areas of the country they are available. Figure 1 describes the total distribution of public access venues included in this study, with proportions by type of venue and by geographic location (urban/non-urban).

This figure shows that cybercafés are by far the most common type of public access venue, representing almost three quarters of the total number of venues included in this study. Libraries and telecenters account for only 11% and 12% (respectively) of the total count of public access venues, with other venues accounting for only 4% of the total. There are exceptions, of course; four countries (Georgia, Honduras, Malaysia, and South Africa) did not report any numbers for cybercafés, and seven more countries reported numbers for cybercafés that are lower than other types of venues (Bangladesh, the Dominican Republic, Kazakhstan, Moldova, Mongolia, Namibia, and Sri Lanka). Based on the descriptions offered in the country reports, these low numbers can be attributed to strong public access initiatives leading to other types of public access venues (religious libraries, school libraries, health cen-

ters), as in the case of Sri Lanka and Namibia. Furthermore, the Dominican Republic in particular mentions a lack of official data for their venue counts, the lack of which may lead to an underestimation of the number of cybercafés. In any case, the field of cybercafés is probably the most understudied, and the numbers of cybercafés are the most difficult to measure and the most likely to grow. It is our hope that research about cybercafés flourishes, as our study indicates that cybercafés are the most commonly available public access venue, especially in urban locations.

Since it seems that most public access venues are cybercafés, we wondered where they are located in a country. This study indicates a clear concentration of public access venues located in urban areas. While telecenters have a high proportion of non-urban locations, public libraries and cybercafés are primarily urban, with 64% and 91%, respectively, in urban locations. Furthermore, on average, only 31% of the public libraries offer ICT as part of their services, and these libraries tend to be in urban centers. Given that cybercafés account for 73% of all public access venues studied (the majority in urban areas), and given that over half the public libraries are urban, it is clear that public access to ICT is mostly an urban phenomenon. With a concentration in urban areas and populations, public access to ICT, for the most part, fails to serve the majority of the rural populations in the countries studied. The urban/

Figure 1. Distribution of Public Access ICT Venues (based on aggregated data from 25 countries in the Landscape Study)



non-urban divide is by far the most significant divide in public access to ICT (Proenza, 2006).

In sum, cybercafés constitute the largest source of public access to ICT, and the majority of public access venues are located in urban areas. This finding has two main implications:

1. There is an extreme predominance of public access initiatives in urban areas. This predominance has been reported before and is noted as a failure of telecentres to serve rural populations in many developing countries (Kuriyan & Toyama, 2007; Proenza, 2006). It is understandable that cybercafés are market driven and more sustainable in urban areas where there are higher concentrations of population. If public access to ICT is to make a meaningful difference for underserved populations, the urban predominance of current public access initiatives needs to be addressed through strengthening initiatives that offer public access to ICT in rural locations.
2. The importance of cybercafés in the field of ICT for community development has pre-

viously been reported by others (Haseloff, 2005), even if cybercafés play an “unintentional” social role (Finkelievich & Prince, 2007), an “instrumental” one (Robinson, 2006), or are an expression of the “public sphere” (Salvador, Sherry, & Urrutia, 2005). Even though there has been far more research about telecenters and public libraries than cybercafés, the sheer number of cybercafés makes it clear that their role in community development needs to be better understood in order to take full advantage of the increased access to ICT that they offer to the public. Furthermore, rather than competing with cybercafés by setting up new or alternative public access venues, government policy and public funds could be better directed to help make ICT services offered by cybercafés more accessible and relevant to underserved populations (as well as equitable in terms of gender, age, education, income, as well as language, ethnicity, religion, caste, and other inequity variables of importance in each particular setting).

Figure 2. Features across all countries by type of public access venue

	Components	Public Libraries	Telecenters	Cybercafés
Access	Physical access	Offers some non-urban locations	Offers convenient hours and non-urban locations	Mostly urban locations
	Suitability Affordability	Viewed as physically safe Most affordable type of venue	Meets local needs Perceived as affordable	Place people want to go Least affordable type of venue, but still seen as affordable
	ICT access	ICT access varies	ICT access varies greatly	Offers most ICT access
Capacity	Staff capacity	Low staff capacity and digital literacy	Staff capacity and digital literacy vary	High staff capacity and digital literacy
	User capacity Local needs in content and services	User capacity varies Outdated materials	User capacity varies Offers locally relevant content	High user capacity Offers access to the Internet, but does not create content
	Socio-cultural factors	Varies from country to country	Varies from country to country	Varies from country to country
Environment	Political will	High political will, but very limited budgets	Some political will; varies	Low political will
	Popular support	Low popular support, some local champions	Strong popular support; NGO and stakeholder support	Perceived as “cool” venue where people want to go

To assess each type of public access venue, this study was based on the Access, Capacity and Environment (ACE) framework, which assesses public access to ICT in terms of equitable access, human capacity, and enabling environment as the key features for understanding the landscape of public access to ICT (see more details about the framework in the Methods chapter). The remainder of this chapter discusses the strengths and weaknesses, as well as similarities and differences, of each type of venue in relation to access, capacity, and environment. Within each of these areas, a number of components play a role in measuring the way each venue delivers its services. Of course, there are exceptions, which will be discussed in greater detail throughout this book. This chapter is intended to give a broad overview of the general themes that emerged in each type of venue across all or most countries.

Figure 2 notes the particular features of each type of venue in terms of access, capacity, and environment.

ACCESS

Access is defined with four main components: physical access, suitability of venue, affordability

of venue, and the technology available in each type of venue. Each of these components is comprised of multiple characteristics. Physical access takes into account the locations of types of venues, as well as the hours of operation. Offering universal access to different levels of income, providing physical safety, and meeting local needs comprise the suitability component of access. Affordability of a type of venue looks at whether or not the venue is affordable to the majority of the population relative to income. Availability of technology includes whether or not a type of venue offers ICT services and connectivity.

Physical Access: Location

As noted above, there is a clear urban predominance of all types of venues, particularly cybercafés. While this trend tends to extend across all countries, exceptions can be found. For example, as noted in Georgia,² “public libraries are the most widespread venues and operate within an organized network. In general, they offer moderately good physical access. Unlike other public venues, they are widely established in both urban and rural settlements.”

Physical Access: Hours of Operation

The hours of operation of the venues are also critical to sufficiently serving the population the venue is intended to serve. Telecenters tend to offer more convenient hours than cybercafés and public libraries. As noted in Ecuador, the operating hours may be a result of telecenters responding to their community needs: “Many telecenters have been nurtured on community needs assessments, which provide them with an important tool to develop services and content.” As demonstrated in Algeria, inconvenient or too few hours of operation and inaccessible venue location can be detrimental to use: “Once again, when asked to state why they elect not to go to libraries, the most common replies were there were no libraries nearby, the operating hours were not convenient...”

Suitability: Universal Access

Suppose there is a public library, telecenter, and cybercafé with convenient hours in an area that the surrounding population can get to. What other factors of access affect the use and success of venues? Let’s look at the suitability of each type of venue, and how it compares in providing universal access to all income levels of the population. This study finds that all three types of venues are similar in this variable of access, as discussed further in Chapter Five on barriers to public access venue use. Chapter Five notes that while cybercafés tend to charge user fees more than public libraries and telecenters, fees for use do not seem to affect which type of venue users choose. It seems that even charging fees does not affect whether or not the venue is affordable or not. However, slight differences were found in types of venues when it came to which ones created programs and services designed specifically for different income levels. For example, in Bangladesh: “Only non-urban telecenters appear to reach out to the lower income population, which commonly makes up 60 percent of the users.” It

appears all types of venues provide access that does not discriminate based on income levels.

Suitability: Local Needs and Conditions

Another component of suitability is whether or not a venue meets local needs and conditions. As with hours of operation, telecenters tend to rank somewhat higher than cybercafés in meeting local needs, but both tend to be significantly more successful in meeting local needs than public libraries. This situation could be a result of telecenters explicitly concentrating on meeting local needs and responding to the conditions of a particular population. As noted above, telecenters in Bangladesh make an effort to meet local needs and conditions of the populations served, “Although cybercafés and telecenters are generally similar kinds of facilities ... there are some fundamental differences. Telecenters tend to focus on information and knowledge services for underserved people, especially in rural areas.”

Suitability: Physical Safety and Venue as a Place People Want to Visit

Physical safety is pertinent when discussing indicators of accessibility of a type of venue. While this study has found public libraries to be lacking in other access factors, public libraries tend to be perceived as a safe space. For example, in South Africa, “Public libraries are generally seen as safe and secure places to study and read. Community outreach and reading, together with children’s programs are regarded as priority activities by librarians.” In contrast, cybercafés are generally seen as less safe, particularly for women and children. This sentiment is noted in Peru, and is echoed across most other countries: “Cabinas [the name for cybercafés in Peru] are perceived as unsafe for children because of the pornography contents available in Internet, and the child pornography

networks that use Internet to contact children.” However, just because a venue is considered safe, that does not mean people necessarily want to go there. People tend to prefer using cybercafés and telecenters over public libraries, as succinctly noted in Egypt: “In general, libraries are not often regarded as a popular destination for people.”

Affordability

Cost or affordability of venues does not seem to mark significant barriers to use, and this study has not found much of a difference in the affordability across venues. Cybercafés are seen as slightly less affordable, as they are the only venues that almost always charge a fee for use, while public libraries are more affordable since they don’t charge a fee. Even in cybercafés, however, fees do not seem to pose a barrier, as illustrated by Brazil: “They do charge for services (Internet access) but we can infer their fees are affordable, as most cybercafés are located in low income communities and are sustainable.” This study found most of the public access venues to be affordable to the majority of the population, thus affordability did not pose a barrier to use – described in further detail in Chapter Five.

ICT Access

Perhaps most salient to the discussion about access to public access venues is the availability of technology. While public libraries and telecenters may reach more of the population in rural areas, technology access is strongest in cybercafés. Even when public libraries and telecenters do have computers for public use, Internet access can be scarce, particularly in rural areas. The case of Namibia may be on the extreme end of low access to technology in public libraries: “Computers are available in 21 libraries (out of 56), but only five of those libraries have Internet access.” Peru may be on the other extreme of technology access in cybercafés, known locally as *cabinas*: “Cabinas

have become the most widely used Internet access points in Peru, and are said to serve 75 percent of all Internet users in the country, according INEI (2008). For people who do not have an Internet connection at home or who do not have a computer (which is most of the population), *cabinas* meet the public need.”

CAPACITY

The three main components of capacity include: the capacity and digital literacy of staff and how helpful they are to users, the digital literacy of users and if the venue offers ICT training, and if the venue provides locally relevant content and services.

Staff Capacity

The digital literacy and level of ICT training of venue staff, as well as their willingness to help users, are all considered under the rubric of capacity. Across most of the countries, the above-stated capacities in staff in cybercafés tend to rank above staff in telecenters, and particularly public library staff. It seems that cybercafé staff have the most ICT training and are able to help users with the computers. In Chapter Five on barriers to use of venues, this difference in capacity is discussed in further detail. A typical example is offered by the Philippines: “Internet cafes have owners or operators who are computer enthusiasts or who are academically trained in ICT-related studies. Most of the staff at Internet cafes is adept at tutoring people who are unfamiliar with computers or the Internet.” In contrast, researchers in Peru found public library staff lacking in the ability to effectively help users, as was the case in most of the countries we studied: “staff at the libraries is inadequately trained because of the budgetary constraints, and that severely affects their motivation and capacity to work. That also explains why those libraries do not develop adequate services in

general, or make a stronger effort to attract more users from the community.” Telecenters tend to fall somewhere between cybercafés and public libraries, and the state of digital literacy of staff varies greatly from country to country.

User Capacity

Cybercafés tend to be perceived as providing users with the most helpful ICT-savvy staff. The digital literacy of a venue’s users, and whether or not venues offer ICT training, are also pertinent to the discussion on capacity. Digital literacy of users appears to be more even across public libraries, cybercafés, and telecenters, although cybercafés tend to offer more ICT training and, overall, tend to have more digital-literate users. While Brazil’s public library system appears more advanced when it comes to offering ICT services than many other countries we studied, they still tend not offer ICT training for users: “In venues where ICTs are offered, there is little or no ICT training available.” In Brazilian telecenters, the same level of users’ digital literacy is illustrated: “The researchers observed that most users do not understand how to integrate ICTs effectively into their lives or their work, either because they are not trained to use it, or they do not comprehend the possible benefits.” In contrast, cybercafés in Brazil seem to attract users who have ICT skills, and while there are little or no formal ICT training, informal training occurs among users:

There is no training or formal educational support offered by venues, but cybercafés do offer informal help for inexperienced users. Most learning occurs individually, or among peers. Considering that there are no ICT training courses, workshops, or guided activities in cybercafés, the researchers concluded that the capacity to take advantage of available information is dependent a user’s functional literacy and familiarity with available information services.

The case of Brazil serves as a typical example of what researchers found in most countries in

terms of users’ digital literacy and the training environment in different types of venues for users.

Local Needs with Content and Services

Another important element for the capacity of a venue is the availability of locally relevant content, as well as content in local languages. Again, public libraries tend to fall on the low end of providing locally relevant content. Telecenters tend to offer the most locally relevant content in local languages. As seen above with some access factors, the ability of telecenters to provide locally relevant content may be due to their mandate and ability to respond to community needs. Overall, this study found that most public libraries tend to suffer from extremely outdated and irrelevant materials, both electronic and print sources, as demonstrated by Georgia: “The public libraries, and especially rural libraries, suffer from a significant lack of useful and current content. This is particularly true with information available through ICTs.” While cybercafés offer the most access to ICT content, they generally do not create or offer content that is locally relevant, besides what is found on the Internet. Representative of findings in most countries, Peru sums this situation up succinctly: “Cabinas provide Internet access, but offer little else...they do not develop any content.” In contrast, telecenters in Bangladesh “tend to focus on information and knowledge services for underserved people, especially in rural areas.” Many telecenters are focused on serving the information needs of the communities they serve, which often results in creation of locally relevant content.

ENVIRONMENT

Three main components are considered when exploring the environment of a venue: socio-cultural factors of discrimination, political will for venues,

and popular support of venues. The socio-cultural factors include discrimination based on gender, age, education, religion, socio-economic factors, and ethnicity. Political will for a venue is made up of a variety of factors, including national and regional economic policies, government support and long-term strategies for venues, legal and regulatory framework surrounding a venue, and issues surrounding censorship of materials in a venue. Popular support is based on whether or not the community supports the venue, the presence of involved stakeholders such as NGOs and civil society organizations, and if there are champions of the venue.

Socio-Cultural Factors

While the venues included in this study are supposed to be open to the public and non-discriminatory, this study did find some perhaps unintentional discrimination in certain venues. While perhaps not outright, there emerged a few trends when it comes to what types of users are visiting each type of venue. Overall, major differences in socio-cultural factors between types of venues were not found. In cases where a type of discrimination occurs, such as gender discrimination, it tends to arise more out of cultural practices in a particular country and not in relation to a type of venue. For example, in Muslim countries, such as Algeria, it is often not appropriate for women to be in public places without their husband, brother, or another male relative. This practice could be construed as discrimination when cross referenced with the number of women that use public access venues in that country, but those numbers stem from cultural and religious practices around women in public, rather than from the policies of a public access venue. Other examples that could be interpreted as discrimination possibly occur from perceptions of types of venues, such as the inclination of public libraries to be seen as places where only students go. If the majority of users of a type of public access venue are students and of younger

ages, this statistic could allude to discrimination of age and education levels, but it's likely not due to particular policies of a type of venue.

Political Will

Overall, public libraries tend to enjoy more political will (i.e., government commitment, funding, and support) than telecenters, and particularly cybercafés (considering cybercafés are privately-owned, for-profit businesses, whereas public libraries and some telecenters are run by the government and operate under government policies and laws. Public libraries also usually operate under a government institution, whereas cybercafés in particular do not, as noted in Georgia: "An important strength of public libraries, unlike Internet cafes, is that most of them are organized under a single institutional structure. This makes it easier to implement any kind of initiatives than it would be in unorganized venues like Internet cafes."

Political Will: Government Financial Support

While public libraries are governed by national and regional policies, it does not always mean that the laws and policies, especially in terms of financial funding, are followed. In Georgia, "The 2003-2005 Years' Concept on Maintaining and Development of the Georgian National Library Network' was approved by the 'President of Georgia Decree Number 246' on January 7, 2003. This concept document contains specific activities to maintain and develop the libraries. The document, as well as the laws governing the libraries, has not yet produced significant improvements in the network's regulation or maintenance." A similar lack of political support is illustrated in the case of Peru: "Municipal governments fund public libraries, but the budgets at best are adequate only to cover infrastructure maintenance and salaries. The more recent improvements in the condition of

the national economy are not being reflected in the investments in libraries, and continued economic constraints in local government budgets in some cases have driven reductions in library budgets and services.”

Political Will: ICT Funding

The Landscape Study found that even when governments do follow through on the budgets and policies for public libraries, their follow-through rarely includes funding or support for ICT services in libraries: In Peru, “the current regulatory and obligatory practices make it nearly impossible for libraries to offer the digital technologies and other services that the public needs if the libraries must charge greater fees to provide any improvement in their services.” The limited budget allocation for libraries is seen in many countries that were included in this study; in Kyrgyzstan: “In general, the libraries are funded by the government for their operational and functional costs, yet few funds are provided to them to subscribe to the latest information resources.” In Mongolia, the same issue exists: “Library operators and officials from the Ministry of Education, Culture, and Science have stated that the institutions remain underfunded and that libraries at the same level tend to receive identical yearly budgets of just over US\$2,000 per venue, regardless of the requests submitted.”

Political Will: ICT Policies and Regulatory Framework

Many countries have started national ICT policies and strategies, but rarely do they take public libraries into consideration. Brazil offers a common example of how ICT policies exclude libraries, but instead focus on schools and telecenters: “Critics argue that national policies focus on telecenters at the expense of the other public access venues. The government has no prominent policy initiatives designed to equip a significant number of libraries with computers or connect them to the

Internet, nor is there any effort to partner with or support cybercafés. Although official data is not available, it is estimated that fewer than 15 percent of all libraries have any ICT infrastructure.” However, as with most of the factors discussed in this chapter, there are exceptions. In the case of Turkey, public libraries are part of the government’s e-Transformation initiative, even if progress is slow moving: “A new investment project in 2008 through the cooperation with the Ministry of Transportation and Türk Telekom Inc., planned for 310 additional libraries to be built and equipped with Internet access centers, but by June of 2008, only 186 libraries had been completed.”

Popular Support

Even though public libraries tend to have more government support than telecenters and cybercafés, libraries suffer from very little popular support. Public libraries in most countries are seen as necessary-but-outdated venues that exist to serve students. In Ecuador, for example, “The libraries offer content oriented to serve students almost exclusively, and that narrow focus is widely supported by the common public perception that libraries exist only to serve students. The issue is compounded when the population at large does not use libraries because they do not find, or even expect to find, information or services appropriate to their own needs.” Libraries in Peru tend to have the same perception as in Ecuador: “The content in almost all of the public libraries is oriented to serve students. With such a limited focus on both the services and content, the broad public perception that libraries exist only to serve students is strongly reinforced.”

In contrast, cybercafés tend to be viewed as places for entertainment rather than education. Depending on a user’s goal, this view can either be negative or positive. In Egypt, for example, cybercafés are often viewed in a negative light due to the content and services they offer: “Cybercafés generally are perceived as convenient places to

access computers and digital ICTs, although the sites are increasingly oriented toward gaming and entertainment rather than providing general public access to information.” This perception varies, though, from country to country. In Kazakhstan, cybercafés are viewed as venues where all types of information can be accessed, and they are regarded positively: “Internet cafes are very important venues for accessing all types of information for all categories of users. In addition, they provide more affordable means of communication with other people through IP telephony, e-mail, and instant messengers.”

Popular Support: Other Stakeholders and Venue Champions

As with cybercafés, the perception of telecenters varies dramatically from country to country as well. Telecenters, however, tend to attract the most engaged stakeholders, particularly when it comes to NGOs and international aid agencies. An example of tremendous NGO support is seen in Uganda, where telecenters have been initiated by numerous organizations such as the United Nations Industrial Development Organization (UNIDO), International Development Research Centre (IDRC), Worldlinks, International Institute for Communication and Development (IICD), the Technical Center for Agriculture and Rural Cooperation (CTA), National Agricultural Research Organization (NARO), UgaBYTES, and United Nations Children’s Fund (UNICEF). The same can be seen in Nepal, where many NGOs and government ministries operate telecenters.

Sometimes a champion for a public access venue can be just as influential as political, popular, and NGO support. Recently, in both Egypt and Indonesia, the first ladies have been very active in bringing public libraries back onto the radar of both government policies and public opinion. While public libraries had been in a state of decline, having local champions, such as the first lady, can be pivotal in changing the course of a

venue, particularly public libraries. This study did not find any examples of strong champions for either cybercafés or telecenters, though they tend to enjoy more popular and NGO support, respectively.

CONCLUSION

As discussed in this chapter, each type of public access venue has strengths and weaknesses in terms of access, capacity, and environment. It is clear that each venue has factors that offer potential and future opportunities for success. The remaining chapters further detail the similarities and differences across types of venues, exploring each type in terms of barriers to use, the typical users, how gender plays a role in public access venues, the human-capacity element, the issue of trust and perception of “coolness” of venues, and success factors across venues.

ACKNOWLEDGMENT

The authors would like to gratefully acknowledge Kemly Camacho and Elizabeth Gould for their early analysis and previous iterations of venue comparison, which have significantly contributed to this chapter.

ENDNOTE

- ¹ Quotes are taken from the specified country’s chapter in this book. Detailed country reports can also be accessed at this link: <http://cis.washington.edu/landscape/library/working-documents/>

Chapter 2

Who Uses Public Access Venues?

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ABSTRACT

Who are the customers of public access venues, where do they come from, and what are their needs? In order to better understand the situation – success or failure – of public access venues, and how to move forward with policies, funding, and further research, it is crucial to better understand who uses public libraries, telecenters, and cybercafés. While there have been studies in different countries about users of individual telecenters or libraries (Becker et al., 2010; Gurol & Sevindik, 2007; Tiwari, 2008), it is difficult to fully answer these questions, even in a study of the magnitude of this one, which represents roughly 250,000 venues in 25 countries around the world. Nonetheless, we can use the data collected in this study to paint broad brushstrokes that give a better overall picture of the types of users of public libraries, telecenters,, and cybercafés. In this chapter, we discuss the main findings in relation to the users of public access venues, particularly in relation to gender, age, education, and income, as well as location (urban or non-urban)¹ of the different types of venues. By understanding who is using public access venues, the providers of the access, be it a public library, a telecenter, or a cybercafé, can more accurately direct resources to better serve their current audience, as well as identify ways to reach out to other marginalized sectors of the population that are being left out, in order to maximize the benefits of public access.

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GENDER DIFFERENCES

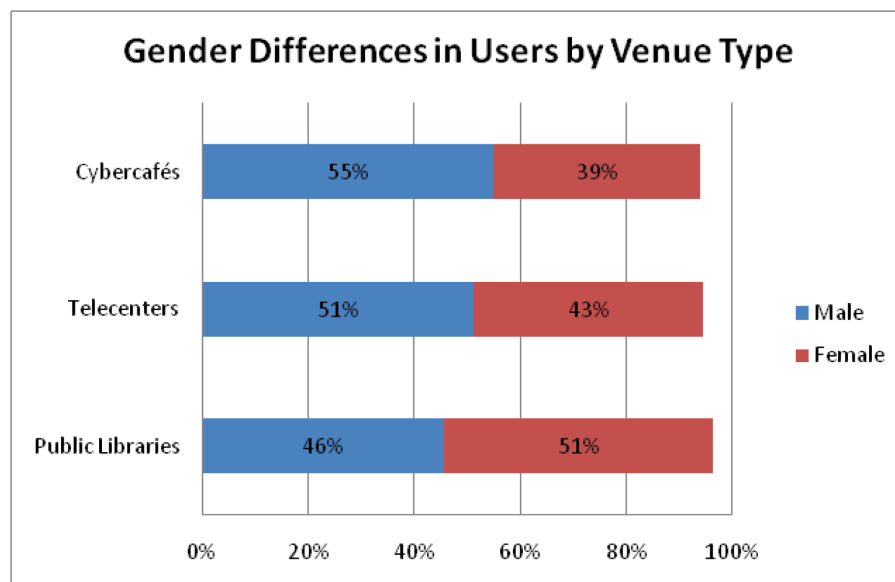
The first demographic variable we looked at was gender. Past experience, and other studies of public access venues, especially studies of telecenters (Abbasi, 2007; APC WNSP, 2009; Gurumurthy, 2004; Kuriyan & Kitner, 2009; Obayelu & Ogunlade, 2006; Ramilo & Cinco, 2005), indicate a significant gender gap in public access venues. The venues are, reportedly, visited and used primarily by men. Upon analyzing our data, we were surprised to find that in the countries and venues we studied, the gender differences that emerge are not as pronounced as the literature had led us to expect. As shown in the following figure, our study indicates that overall trends in the gender distribution of users of the different types of public access venues tend to be quite similar among men and women around the world, with small differences that we will discuss in detail below.

Public libraries appear to have the smallest difference in gender distribution of users, with a slightly higher proportion of women visiting libraries than men (Agosto, Paone, & Ipock, 2007;

Applegate, 2008). Telecenters and cybercafés, on the other hand, tend to be visited more frequently by men than women. While the gender difference is smaller in the case of telecenters, in the case of cybercafés the difference may be more important (16 percentage points for cybercafés vs. 9 percentage points for telecentres). This data confirms that an access gaps still exists with regard to gender, but women were clearly using all of the public access venues we surveyed, and their use is not insignificant.

Commenting on an earlier version of this chapter, Francisco Proenza (personal communication) rightly noted that the apparent gender balance does not take into consideration the fact that 1) cybercafés are far more numerous than other venues (even if the numbers are exaggerated) and 2) public access venues are more concentrated in urban settings. Our data is not robust enough to analyze the urban/non-urban divide and how it relates to gender or other variables among users, but if we take into consideration the relative weight of the number of cybercafés vs. the number of libraries and telecenters, the gender difference in use of

Figure 1. Gender differences in users by venue type (based on aggregated data from 25 countries in the landscape study; totals do not add up to 100%)



Who Uses Public Access Venues?

public access venues becomes more significant. This difference/significance is displayed in the following figure:

If we weigh the gender distribution of the users in relation to the number of venues in each type, the difference between men and women using cybercafés becomes clearer given the fact that there are far more cybercafés than other types of venues. Taking into account the numerical predominance of cybercafés, the gender difference in use of cybercafés appears to be more significant. At the same time, this reading of the data also minimizes the gender disparity among users of libraries and telecenters and over emphasizes the gender equity of the use of libraries and telecenters as public access venues.

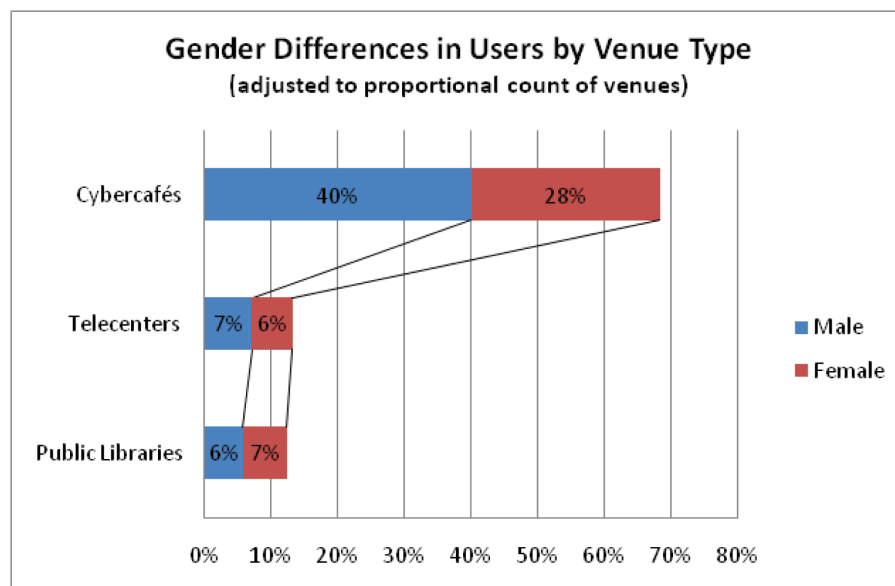
Based on the above, we suggest that public access initiatives that explicitly address and correct social inequities and gender differences, as is most frequently the case in public libraries and telecenters, are more successful at transforming the gender imbalance of women having more limited access and use of ICT in public access spaces. But this gender imbalance remains untouched, or is

further exacerbated by initiatives that only provide access to technology, as is the case of cybercafés. Additional discussion of gender and its impact on public access is found in Chapter Six.

More in-depth research in each particular context is needed to assess a) whether the gender imbalance is larger or smaller than what our findings seem to imply, b) whether this difference is the result of numerical distortion in the count of venues, and c) whether it represents evidence that gender equity can be enhanced through purposeful social intervention (i.e., programs specifically designed to encourage women's participation), or is it market forces that limit public access to providing access to ICT alone, ultimately reflecting existing inequities in society.

Evidently, the number of users does not give the full picture of who uses public access venues by gender: the frequency, intensity, purpose, and results of ICT use in public access venues are also important for how users break down by gender. For example, women face significant social restrictions in numerous countries, especially in some Muslim or Hindu countries where it is socially

Figure 2. Gender differences in users by venue type (based on aggregated data from 25 countries in the landscape study)



unacceptable for women to be alone or without a male in public places, or it is not acceptable for women to interact with male operators of public access venues. An example from Egypt illustrates this reality for some women: "...local cultures also sometimes affect the people's access to public access venues. Among these is the factor of gender, which in some communities limits the access of women. Cyber cafés, as an example, witness a limited number of female users, more so in rural areas. While this is not as extreme in other venues, there is a limitation on the suitable hours for females to access these venues" (Wanas, 2008, p. 31).

These cultural factors may be stronger barriers for women to use public access venues than just "no free time," or "no training in technology." Recent research in India and Chile by Kuriyan and Kitner (2009) also explores gender and shared computing. Nonetheless, gender interactions in public access ICT warrants further investigation and tools, such as the Gender Evaluation Methodology (GEM) developed by the Association for Progressive Communications (APC WNSP, 2009; Goldfarb & Prince, 2008; Ramilo & Cinco, 2005), which would be useful in shedding additional light on who uses public access venues by gender and how they use the different types.

AGE DIFFERENCES

Now that we know there is a relatively equal gender distribution among users of public access venues, we turn to the next demographic of our user profile: age. Are public access venues being used largely by older people keeping in touch with family or looking for employment? Or are the computers being used mostly by young people working on homework or playing games? Let's find out.

Age is the most commonly reported variable affecting usage of all public access venues, as reported by all research teams around the world. Public access ICT venues are frequented mostly

by youth. As the Argentina research team clearly stated, "Gender is not as relevant as age regarding the use of the information venues."

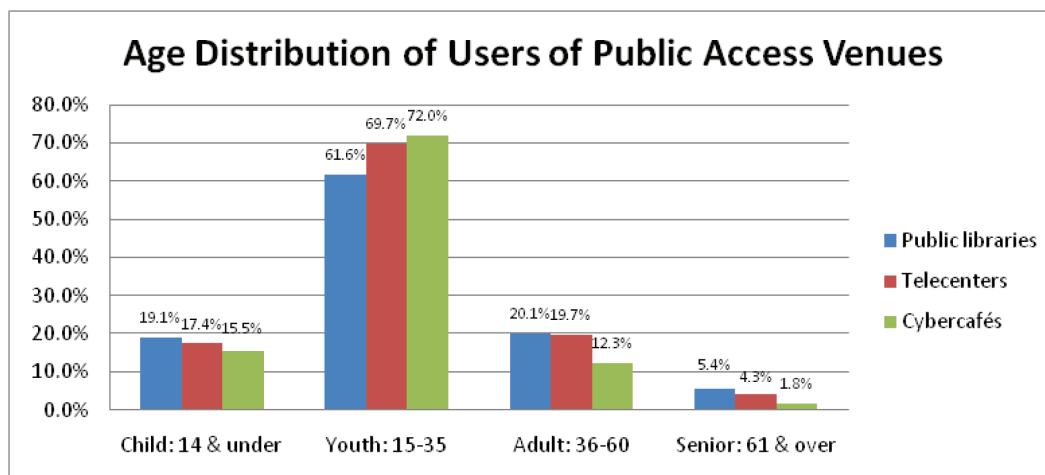
The following figure shows that the overwhelming majority of visitors to all three venues are between 15 and 35 years of age. While it would have been preferable to have a finer filter in the age brackets – for example, an age bracket between 15 and 24 and another between 25 and 35 – variations in the scales used in different countries make it impossible to more finely differentiate smaller age brackets between 15 and 35. The percentage of "senior" visitors aged 61 and older is the lowest of all age groups in all venues.

Why is it that youth and young adults are the primary users of public access venues? Many studies, including the Landscape Study, have explored many factors, and we assert that it is most likely a combination of these factors that make youth the primary users. It has frequently been said that youth are "naturally close" to technologies, and that older populations are more removed: for example, in studies of populations over sixty years of age in developed countries (Raban & Brynin, 2006), older populations are shown to use ICTs very little. However, in this same study, the authors postulate that perhaps much of the relationship between age and technology use has to do with "secondary factors that are associated with age, such as reduced employment, diminished resources, and lower level of education" (Raban & Brynin, 2006, p. 49).

As we illustrated above, there are exceptions to the gender dimension of a public-access-venue user profile. But with age, the concentration of users around youth, even largely defined as between 15-35 years of age, is clear across all types of venues and across all countries. There is little or no variation in the trend shown in the figure above when separating urban and non-urban venues, except for a slightly higher proportion of adult users in the small number of available, non-urban public libraries and telecenters. Furthermore, there are very few countries where there is

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Figure 3. Age distribution of users of public access venues (based on aggregated data from 25 countries in the landscape study)



a remarkable difference in the age distributions of the users from the averages shown above. Given that we found little variation across the 250,000 venues in 25 countries, it is odd to have significant differences in one or two countries. In the cases examined below, more research in each country would be required to explain or correct the following extreme variations from the average.

Significantly Higher than Average

Honduras shows an unusually high proportion of children (ages 14 and under) using public libraries, while the Dominican Republic shows an unusually high proportion of children using telecenters. While anecdotal evidence would suggest a high concentration of school children using libraries and telecenters in these countries, it is more likely that the apparent extreme variations in these two countries are due to measurement error, since they both also report lower-than-average use of these venues for the youth age group, suggesting that the scale used to differentiate children from youth might have been different in these countries.

At the same time, Kazakhstan, Kyrgyzstan, and Namibia all show unusually high proportions

of youth using public libraries, and Honduras and Kazakhstan show unusually high proportions of youth using telecenters. It is possible that these extreme variations are due to measurement errors in each country, since it is unlikely that all or almost all users of any age group would be exclusive users of any particular type of venue, as the data in those countries would seem to suggest. Finally, Peru and Mongolia both show a higher-than-average use of telecenters among adults, but we cannot find any apparent reason for this variation.

Significantly Lower than Average

Few countries show a significantly lower proportion of youth using the public access venues: Costa Rica reports a low proportion of youth using telecenters, Dominican Republic reports much lower-than-average youth use of all venues, and Georgia and Honduras both report a relatively lower proportion of youth using public libraries. On the other hand, Peru reports an unusually low proportion of adult users of public libraries. As discussed above, the cases of Honduras and Dominican Republic may be attributed to errors in

measurement; there is no obvious explanation for the variations in Costa Rica, Georgia, and Peru; further research is needed to assess whether they, too, are measurement errors, or if there are specific circumstances in those countries that explain this type of user distribution.

Taking into account the broader picture – and with the public access landscape being dominated by cybercafés – we created a projection of users by age that is proportional to the number of venues of each type. The result of this adjustment for age reconfirms the previously highlighted trend of youth as primary users of public access venues, emphasizing a stronger preference among youth for cybercafés over other types of venues, and eliminating a very slight preference among children, adults, and seniors for libraries over other venues, as is apparent in the analysis described above. Nonetheless, the differences are small enough not to warrant a solid conclusion. We have already indicated that the nature of the numerical data makes our analysis useful to identify higher-level trends, but not useful to explain small differences in each particular context.

Let's take a look at a specific country example to support the finding that the majority of public access users are aged 15-35. The case of Ecuador appears to be a very typical illustration of the age distribution of users of the three types of public access venues, as described by the local research team:

- **Libraries:** “Library users are mainly young students (around 70% with education level up to high school), 79% between 15 and 35 in urban areas, and 83% in the same range in non-urban areas. Most of the users are from medium [income bracket]” (Bossio & Sotomayor, 2008, p. 47).
- **Telecenters:** “Young people between 15-35 years old are most of the users of telecenters in urban areas; in non-urban areas users are mostly distributed by age (50% under 14, 17% 15-35, and 33% older than

35). People older than 61 are not telecenter users” (Bossio & Sotomayor, 2008, p. 60).

- **Cybercafés:** “Young people between 15-35 years old use cybercafés; this segment usually are incorporated to labor market, so they can afford the cost of services... In non-urban areas a significant (36%) [number of] users are under 15 years old, and their use of cybercafés is mainly for education purposes because they usually don't have other sources of information. In urban areas highly educated populations [are the] main users of cybercafés (70% with university degrees)” (Bossio, 2004; Bossio & Sotomayor, 2008, p. 75).

The fact that information needs can also be met at the workplace with a phone in the shop or a computer at work could indicate that adults do not use ICT less than youth, they just use public access venues less because they find other ways to access ICT at work or at home. As we will see, the same logic applies when discussing income differences.

EDUCATION DIFFERENCES

So far, we have found that our user is either a young male or young female, most likely between the ages of 15 and 35, regardless of the venue we are in; but remember, we are probably sitting in an urban cybercafé. In order to perhaps explain the dominant age group, we thought it would help to look at our users' education level. Results of our study show that, overall, most users of public access venues have formal high school or college educations, while a smaller proportion of them have elementary school educations, and only a small fraction have no formal education at all. Coupled with the age factor, our study shows that the majority of ICT users in public access venues are students, especially young students, across all types of public access venues.

Who Uses Public Access Venues?

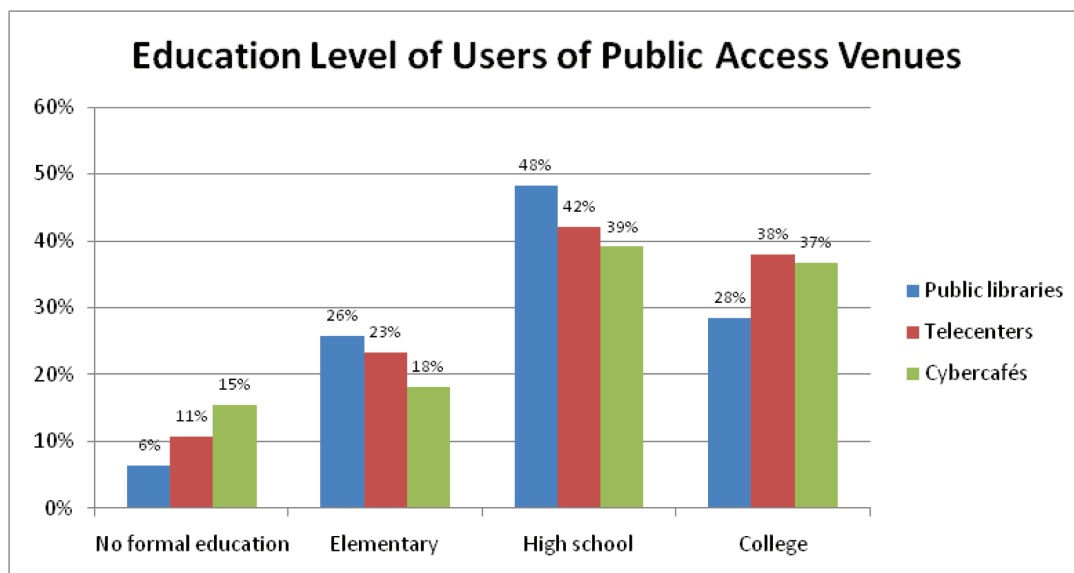
Presented in a visual manner, the figure below emphasizes that when looking at education levels, a pattern emerges in which the smallest user group has no formal education at all, and the proportion of users grows as the level of education goes up, reaching its maximum number of users at high school levels of education. The proportion of users with college level education then drops again, but it is still higher than for those with elementary education only. This pattern is consistent across all venue types (libraries, telecenters, cybercafés), and also across geographic locations (urban and non-urban venues), except for a slightly higher proportion of elementary school level usage in non-urban locations than in urban ones. One limitation of the data presented here: for most countries, it is difficult to know whether the education level is the current level (students actively enrolled in education at that level) or the maximum level reached. Bearing in mind the predominantly young age of the majority of users described above, and on anecdotal evidence, we are inclined to think that the majority of users surveyed are youth currently enrolled in school at the level indicated

here, and not adults who record this level as the highest level of education reached.

As with the age of users, few countries have a significant variation from the general trend expressed in the figure above: Egypt reports 80% of users of public libraries are in elementary school, and Moldova reports almost half the users of telecenters and cybercafés have no formal education. Kazakhstan reports unusually high percentages of college level users in all venues. We have no particular explanation for these variations from the general trends; further research in these countries would be needed to assess what is causing these variations in the trends.

Most of the research teams around the world described education as being the primary factor of usage for public access information venues: these spaces are being visited mainly by young men and women doing their studies, primarily at the high school level. People with little or no formal education don't appear to be visiting these venues as frequently. This fact was expressed well by our Sri Lanka research team: "There are large numbers of people who are illiterate, who have no basic education, and are school drop outs. Very few of

Figure 4. Education levels of users of public access venues



these people will use public access information venues” (Wanasundera, 2008, p. 19).

The figure above indicates a predominance of library use by elementary and high school level users. Nonetheless, this data does not necessarily indicate that these groups are making use of the public access venues to actually fulfill their school-related information needs or not. A separate chapter in this book discusses the information needs and how they are being met (or not) by different public access venues. While an important feature of public access venues is to fulfill the information needs of school-aged children and youth, most of whom are enrolled or have completed elementary, high school, or college level education, the apparent preference for libraries among elementary and high school students is erased when we factor in the relative weight of each type of venue: there are three times as many cybercafés as there are telecenters and public libraries combined. Based on user age and education level alone, it’s difficult to confirm whether libraries and telecenters are used more for education-related activities and cybercafés less. But other qualitative data collected in the study does confirm the importance of education uses across all three venues. As with the age of our user, we want to illustrate the education characteristic of our user with the following narrative descriptions local research teams made about the education-related information needs of users.

- **Libraries:** in Honduras, for example, “people access every day, the majority being kids and young people in school and university students.... Although the community has free access to the libraries, the adult population is the group who less visits them.... Students are the ones who consider it not only useful but necessary. But reading, information and knowledge as a way to improve the quality of lifestyle are still not as widespread amongst the

rest of the community” (Arias & Camacho Jiménez, 2008, pp. 81, 82, 83).

- **Telecenters:** in the Philippines, for example, where telecenters are called Community E-Centers, “the users belong to the low- to-medium-income range and possess intermediate education. They are below 25-years-old and live in rural areas... These students take the most advantage of accessing information through ICT while women, farm workers, the elderly and other underserved may have some difficulty finding time to access” (Ideacorp, 2008, p. 98).
- **Cybercafés:** in Kyrgyzstan, for example, where cybercafés are called Internet Clubs, “the majority of the users at Internet Clubs are students and school children. They usually look for thesis or dissertation references or subjects they are studying for their course work or thesis. In addition, students and school children come to Internet clubs to print out their presentations” (Ariunaa, 2008, p. 152).

While there is some evidence supporting an important education-related use of all types of public access venues, especially at the high school level, it is clear that people with no formal education are, for the most part, not using public access venues. This disparity points to an important social-equity gap in the use of public access venues, especially challenging to the social role of public libraries and telecenters: how can they better include and serve the sectors of the population that is currently being excluded, like those who do not have any formal education? We propose more research into the education level and education uses of public access venues is needed to understand this issue in more depth.

INCOME DIFFERENCES

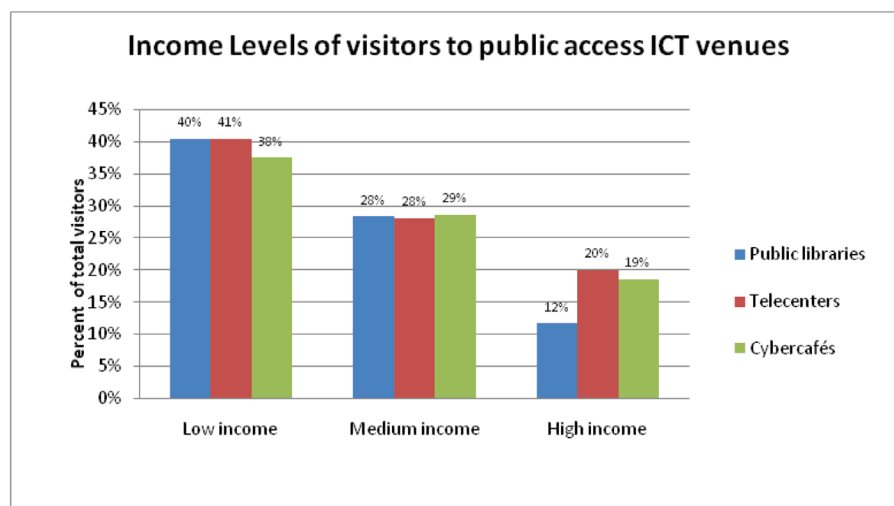
What have we found out so far about our user, generally speaking, across the Landscape Study? He or she is young, in their teens or 20s, and has some level of formal education, most likely high school. If this were a marketing campaign for a product or service, the company would undoubtedly ask, “Well, how much do they make?” While public access venues do not generally set out to make huge profit margins as companies do, income is still an important demographic factor to consider, especially for those initiatives and programs aimed at helping the underserved in a region. We have found that our study appears to confirm that public access venues around the world are accessed primarily by individuals with low-to-medium income (where low, medium, and high income brackets are relative to the context in each location, not to a set dollar value). There is less use of public access venues by people with higher incomes, especially of public libraries, as the following figure indicates:

These results seem to support the idea that public access venues *do* make a difference in making ICT more accessible to lower- and-

middle-income populations, where private ownership of computers may be out of reach.

Some telecenters and almost all cybercafés generally charge a fee for their services, so an interesting observation from the above figure is that there is not a large difference between low- and middle-income groups in their use of free public libraries versus fee-based cybercafés and telecenters (a small proportion of telecenters offer services for free; most charge some kind of fee for service, even if it is very low or subsidized and does not help to cover all the expenses of operating the telecenters). As discussed in a separate chapter on fees for service, one might expect the differences in the patterns of use to be larger if cost was important in determining choice of venues. Factors such as services offered, content, trust, and preference of friends, seem more determinant in people’s choice of which public access venue to visit – not cost. In other words, while defining the precise reason for income-related variations in public access to ICT is not possible with the data we have, the observations provided by our research teams seem to indicate that charging a fee is not necessarily a significant obstacle to accessing information in public access venues. Chapter Five discusses the issue of fees and

Figure 5. Income levels of users of public access ICT venues



other barriers to use in much more detail, but the discussion of fees along with the income level of public-access-venue users is pertinent, even if to disprove preconceived notions of who is willing to pay a fee or not. The situation described by the Brazilian team seems to be fairly typical, not exceptional: “poorer people were more likely to use cybercafés than their rich counterparts. Among Internet users earning less than the minimum wage, 78% declared they access the Web through paid public access centers. By contrast, only 30% of those who earned more than five times the minimum wage relied on cybercafés” (Voelcker, 2008, p. 16).

Aside from cost, populations also value other aspects of public access venues, such as the services they provide and the array of resources available. Our Nepal researchers, for instance, pointed out that low-income groups could not afford the services of telecenters and cybercafés, but they also viewed these venues as being unimportant. At the same time, these researchers observed that high-income groups didn’t need to come to cybercafés to get their work done, the obvious reason being that they most likely have computers and Internet connection at home or at work.

This income-related usage is an important issue to explore further, especially in the face of increasing difficulties for financial sustainability of public access ICT services, as discussed in Chapter Nine, on success factors for public access venues. Based on the findings of this study, public libraries (which generally offer ICT access for free) and telecenters (which are sometimes free but frequently charge low fees) could improve the financial sustainability of their ICT services by charging user fees without significantly altering the use of their ICT services: people of similar income brackets appear to make comparable use of different types of public access venues regardless of fees, and use of public access venues seems to decrease as income bracket increases.

Finally, these findings confirm the notion that use of public access venues is not necessarily re-

stricted to lower- or middle-income populations, although these groups do constitute the majority of users. In conversation with research partners, we discovered that public access venues are also used by people who have private access at home, at work, or at school: convenience, speed, or socializing with friends were strong drivers in use of public access venues. The case of Peru is unique in that there is an unusually high proportion of Internet access in the country that happens through *Cabinas Publicas*, the local version of cybercafés, as opposed to through private access at home or work. The history of Internet penetration in the country, and the early spread of *Cabinas Publicas*, might explain this unusual trend, which is not replicated in any other country in the study. We recommend additional research on whether higher income populations tend to use ICT less in public access venues because they use it at home, at work, or elsewhere.

We have illustrated that the typical profile of users of ICTs in a public access venue – a library, telecenter, or a cybercafé – in the 25 countries we studied is very likely to be people in an urban location, very likely young (15-35), low-to-middle income, and those with a high school or college education. Overall, users are equally likely to be male or female (although a majority of users of cybercafés appears to be male, and some differences do exist in particular countries and particular venues). This typical profile highlights the notion that public access venues are serving people who are already benefiting from other social services, especially formal education. In sum, public access venues are not serving the poorest and most marginalized and excluded sectors of society.

The most salient gap revealed in our study and user profiles is not based on gender, age, education, or income, but based on geographic location: public access venues are predominantly located in urban centers, while non-urban areas are dramatically underserved with very few exceptions. Reaching rural populations with public access to ICT is a far more difficult and costly task than

reaching urban populations, but it is a task that governments, development agencies, and donors will have to address if they are to make further progress in overcoming the digital divide.

If the driving force behind funding public access venues is the intent of contributing to social development, reaching underserved communities, and closing digital divides, as tends to be the case in public libraries and telecenters, this goal is partially being met: lower- and middle-income users are being served, women appear to be served as much as men, and children and youth appear to be the strongest users of these venues (adults and seniors far less so), and these venues are also serving the information needs of students. An important finding of this study: while public libraries and telecenters are serving social-development needs of underserved communities in urban areas, cybercafés appear to serve these needs just as well in urban areas of most countries we studied. In addition, cybercafés are much stronger players in the public access landscape, with more numerous facilities in operation in urban areas, and with similar patterns of users in regard to age, gender, education, and income. Even with their strong urban predominance, the potential role of cybercafés in social inclusion has been studied very little, and opportunities for partnerships and collaboration between public libraries, telecenters, and cybercafés have rarely been explored. Results of this study emphasize the need for creative solutions to harness the potential offered by cybercafés in urban areas, and to look for ways (policies, partnerships, incentives) to make them more accessible and useful to adults and seniors, to women, to lower-income users, and to those with no formal education – to those marginalized and excluded from goods and services in society. Other exclusion factors are likely to include language, ethnicity, religion, caste, and so on, which should be equally addressed in each particular context to make public access to ICT truly equitable. In non-urban areas, where cybercafés may not find enough clients to make them

self-sustaining businesses, the role of telecentres is especially important and warrants more attention.

What can be done to improve access and broaden inclusion for truly underserved populations (low-education groups, very poor, and the elderly, in both urban and non-urban areas)? The predominance of young users with formal education suggests that just providing public access ICT does not necessarily result in further inclusion of marginalized sectors of the population. The sole provision of public access to ICT, without additional training and outreach to include people marginalized from social and economic goods and services, may not significantly transform inequitable relations and distribution of resources in the communities they serve. For example, the existing divide between urban and non-urban communities is magnified through the urban bias of public access venues, and the predominance of youth seems to be trending towards a new age divide. Those already excluded from formal education are further excluded from public access venues, and it is likely that the poorest sectors of society are also being excluded. Providing access alone does not automatically result in stronger inclusion of marginalized and underserved populations. Other factors, such as ethnicity, religion, caste, or language are not included in this study for lack of comparable data, but should be explored further as well.

The high youth participation rates intrigue us, so we explore it more in Chapter Four on trust and perceptions of public access venues. What are the social dynamics in these spaces? How are they configured as social spaces for interaction, both online and offline? Perhaps we should think in terms of how the technology enthusiasm of young users could be captured to benefit communities? How will the knowledge production processes of young people (influenced by new communication and information processes) affect how communities and countries operate? While we do not answer all of these questions in the chapter on trust, we do delve into youth use of public access venues

and the notion of “cool.” As we move through the remainder of this book, we ask you to keep the picture of a public-access-venue user we have uncovered here in mind: most users of public access venues can be found in an urban cybercafé; they are young, moderately educated men or women, and from lower- or middle-income levels.

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ENDNOTE

- ¹ There was much discussion with our research partners on the use of urban vs. rural as each country has a different definition of what constitutes rural, and there is always the issue of “peri-urban” locations; we have, therefore, simplified this distinction by focusing on the urban and non-urban geographic distribution.

Chapter 3

Infomediaries and Community Engagement are Key

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ABSTRACT

In the previous chapter, the authors looked at users of public access venues: the majority are young, educated, and from lower- or middle-income backgrounds. Given this user population, the next question was, how do libraries, telecenters, and cybercafés meet the information needs of their users? Three steps are required to serve a population's information needs: (1) understand the culture of the user population, (2) include decision-makers who understand the user population, and (3) take advantage of direct input from the user population from project inception. Direct input from users enables them to access information and involves them in solving their information needs in ways that are personally relevant (Bridges.org, 2009). The operators of public access venues play a key role in understanding and meeting the information needs of the local population.

A review of the 25 countries studied revealed that public access venues most successful at meeting local information needs of underserved communities often contained one or both of two important features: strong infomediaries and/or strong community engagement. The term infomediary is used in a similar way to gatekeepers (Metoyer-Duran, 1993), key informants (Schilderman, 2002), lay-information mediaries (Abrahamson & Fisher, 2007), or boundary spanners (Mason, 2003). These authors use the term to refer to a liaison or broker between an individual, or group of persons, and another group. They prefer infomediary to emphasize the role of brokering or transferring information in a culturally appropriate manner by taking into account the norms of each group of people with whom the infomediaries connect. Community engagement, on the other hand, is the ability of community members to work together to achieve shared goals. The authors draw from Bieber et al. (2007), who describe "enabling communities" as those that "enable participants to work effectively towards conducting both collective and individual activities and toward achieving collaboratively identified goals."

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Based primarily on qualitative data collected in all 25 countries, the authors offer insights into how libraries, telecenters, and cybercafés use infomediaries and community engagement to fulfill the information and communication needs of the communities they serve. The results of the Landscape Study show that telecenters, and more particularly libraries, face a challenge in facilitating access to information for underserved communities. Cybercafés, which are thriving as public access venues even without the presence of trained infomediaries or community engagement, are generally perceived to be well staffed and able to serve community needs. On the other hand, telecenters and libraries, whose missions are to provide access to, and support for, ICT and information needs of their communities, tend to be perceived as having staff insufficiently trained in the use of digital technology.

Building capacity for collecting content and enabling access to information by community members means training staff as well building their digital capacities. The involvement of local community members in the establishment of public access venues, and the ability of the venues to serve the community's information needs, suggests that the focus on technology may be less important than a focus on community-gathering spaces (Hearn, 2005), i.e. the effective exchange of information may be more dependent upon the venue than upon the technology. The expansion of information-gathering tools can develop through these trusted centers.

INFOMEDIARIES IN PUBLIC ACCESS VENUES

A review of the literature confirms that infomediaries are pertinent to the success of public access venues. Sey & Fellows (2009) pointed out that infomediaries “have been found to be important contributors to the viability and sustainability of a public access venue.” The idea is not new. In his study of knowledge and information systems of urban poor, Schilderman (2002) suggests “social networks are the foremost source of information of the urban poor.” The poor tend to believe people they trust rather than perhaps more informed contacts with which they do not have close ties. He identified successful ways to meet information needs of urban poor, including involvement of the poor themselves as equal partners who can draw from and build on local knowledge, using community-based communication methods, and building the capacity of community-based organizations and key individuals within them. These features manifest differently in each type of venue depending on context. As discussed in an earlier chapter, our findings must be placed in the context of the relative proportion of each type of venue

studied: across all 25 countries, approximately 12% of the venues are libraries and another 12% are telecenters. Cybercafés account for almost 75% of all public access venues studied.² Accordingly, in terms of public access, the relative weight of cybercafés is three times higher than that of both libraries and telecenters combined. These numbers are important to keep in mind – both for those who will make programming decisions and for other interested parties – in both libraries and telecenters, which tend to have more defined roles for infomediaries and community-engagement activities than cybercafés.

While infomediary work is generally considered an important component of library services, users put more value in the infomediary role of telecenter and cybercafé operators because they are perceived to offer more effective help with ICT tools and services. Although, the role of librarians is to help users find information, libraries tend to have more limited ICT services and their staff is generally not well trained in the use of ICT tools (if available to them).

Infomediaries can be formal or informal liaisons between communities. A formal infomediary might be a librarian or telecenter/cybercafé opera-

tor who has a paid position within the venue. Their job is to reach out to an underserved community, perhaps providing language bridges, literacy connections, needs links, or leadership associations. Equally important are informal infomediaries who may supply similar links but through different means (examples include a child to a parent or vice versa, language translators, or unofficial connections between communities). Infomediaries can act on multiple levels: at a community level, between communities, or between a community and a venue, as well as at an individual level: between a user and technology. In this chapter, we focus specifically on formal infomediaries, and we contrast their role in libraries with their role in telecenters and cybercafés.

How do infomediaries play a role in libraries, especially given that of the libraries studied, 44% do not offer ICT access to the public? Libraries that do offer ICT access generally do not have digitally literate librarians (trained to use or help users with ICT tools). These factors, prevalent in the majority of the libraries studied, strongly influenced users' negative perceptions about the utility of libraries to meet community needs. Lack of ICT literacy also created negative perceptions concerning the skills librarians offered as infomediaries to members of the community. But we found that when libraries proactively become social and community resource centers, the "digital gap" of the librarians is less apparent than when libraries only provide access to books and other non-digital resources.

To illustrate the importance of infomediaries, we offer some typical examples of successful infomediaries in libraries. Sixty Riecken Foundation Libraries in Central America operate in Honduras and Guatemala. These privately funded libraries began as democratically run community centers for local involvement. Their hallmark is community participation in both the set up and sustainability of the venues. Because the communities are involved, and locals are on the board of directors, emphasis is placed upon local needs and the long-term

goals of the community. Library board members develop mission statements, hold elections, and establish library policies. The libraries function as places for people to gather, providing information, entertainment, and socialization. Librarians must be educators from the community. The libraries focus on providing support to people who don't know how to use the information sources, which requires the librarian to act as an infomediary.

Another example can be drawn from Sri Lanka. Two publicly-funded information centers in Sri Lanka use infomediaries to disseminate information to groups that lack information literacy: Vidatha Resource Centers and Rural Agricultural Knowledge Centers. These centers disseminate content generated by national research institutes, which helps to improve quality of life for low-income families through an increase in productivity and income. The leadership of the infomediaries at these centers played a crucial role in meeting information needs. "Leadership was a critical factor in the success or failure of venues in achieving their primary objective of meeting the information needs of the communities they serve. Operators that had superior leadership qualities had overcome resource constraints to a great extent and their innovativeness had drawn the communities to the venue to use its service. It was seen that empathy, adopting a participatory approach to the development of the venue, establishing a mechanism to get feedback from the community, and forging links and cooperating with agencies that generate information that is vital for the people are factors that contribute to success in meeting the information needs of the people."³

In Uganda, nonprofit organizations and foreign agencies established community libraries that target particular sections of the community by providing space for meetings and socialization. The librarian lives in the community and identifies and provides for local information needs in a way best suited to the users. For example, community libraries that serve the primarily rural agricul-

tural communities in Uganda collect agricultural literature from NAADS (National Agricultural Advisory Services) for local distribution.

While the above are fairly typical examples, a unique example of a national library that serves the community with ICT, despite its limited infrastructure, is the National Public Library in Tegucigalpa, Honduras. Because computers in this library don't have Internet access, the Library Chief conducts Internet searches on her home computer and presents the information to the users on the following day. She files copies of frequent requests in the library archives in order to respond to similar questions in the future.

Despite these examples of librarians acting as infomediaries in different contexts, the users across all 25 countries have a somewhat negative perception of the role of librarians as infomediaries. This trend is exacerbated by growing interest in using computers and ICT in the other two types of public access venues. Libraries have comparatively less ICT infrastructure, connectivity, and digitally trained staff than telecenters and cybercafés. Despite a long tradition of library information services to the public, with trained librarians and staff (with limited training in most contexts we studied), libraries are perceived as falling behind both telecenters and cybercafés as public access venues offering meaningful infomediary services.

Infomediaries in telecenters present a different picture. Telecenter operators as infomediaries are well documented in the literature (Benjamin, 2000; Bossio, 2004; Delgadillo, Gomez, & Stoll, 2002; Gomez & Hunt, 1999; Jensen & Esterhuysen, 2001; Parkinson, 2005; Proenza, Bastidas-Buch, & Montero, 2002; Rajalekshmi, 2007), yet we found few examples of successful telecenter infomediaries, especially when compared to reports about library infomediaries. The few reports that do deal with infomediaries in telecenters tend to talk about infomediaries in a positive way, particularly in regards to their help with agriculture or health information. Typical examples of telecenter infomediaries follow.

Telecenter projects are successful in the Dominican Republic where local youth are involved. The Knowledge and Communication Community Center in Morocelí, Honduras, acts as both an ICT access center and a gathering place for youth. The center "offers workshops with every member of the community in mind." Because many members of the community don't know how to use the Internet, they often ask children who visit the Center for help, encouraging youth to act as infomediaries. The researchers emphasize the importance of mentoring to enhance information approachability in these venues, helping users understand how the venues are personally applicable.

The Pallitathya Kendra telecenter in Bangladesh provides infomediaries who travel through the community collecting questions from community members (mobile infomediaries). Back at the center, these infomediaries consult professionals and the content database in order to provide answers to the questions from users. The infomediaries also supply feedback to the parent telecenter office, which helps to add new content and improve quality of information that is locally relevant and contextual.

Most published research on infomediaries pertains to ICT access in public libraries and, to a lesser extent, in telecenters. Cybercafés, on the other hand, have emerged as an important venue in providing public access to ICT for community information needs, but receive little attention in research literature compared to libraries and telecenters, particularly in relation to the role of infomediaries. In our study, there is little evidence that cybercafé operators are perceived as successful infomediaries, although this role is different than their utility as assistants in ICT use. A few exceptional cybercafés are worth mentioning for how their operators serve as information liaisons.

In Algeria, as in other countries where gender roles are sharply differentiated by religion and social restrictions, female operators are preferred and more trusted as infomediaries. Local researchers reported the majority of the users "said that

they are satisfied by the cybercafé especially because Faiza [the telecenter operator] is a very sympathetic lady, there is no stress and there is a print service. They also insist on a fact that Faiza is suggesting a guide of websites. When we asked them to mention all factors that motivate them to use a cybercafé they answer: ‘the manager is a lady.’”

As proven successful in Dominican Republic telecenters, youth can serve as very effective infomediaries. Researchers in Costa Rica report that in cybercafés “it is common to find youths exchanging information about picture uploading, music downloading, templates, layouts, and other tools related to Web 2.0. Although many people do not have the capacities to fully utilize the ICT tools offered in cybercafés, other users and operators help to develop their capacities at least in basic issues (such as e-mail, chat, and information download).”

In contrast to many public libraries and telecenters, cybercafés tend to have digitally literate staff who help users with basic ICT needs. Even if this support is limited, users value it. Across all countries, we found cybercafés are perceived to have higher staff ICT capacity than telecenters and, especially, libraries. Cybercafés are market driven, therefore, more inclined to meet user needs. As specialists in ICT tools and connectivity, these venues tend to support ICT tools and services. In contrast to telecenters and libraries, cybercafés are not necessarily driven by a social mission, so users’ expectations of infomediaries in cybercafés may be far lower than in other public access venues.

In sum, users of ICT in public access venues seek support to use ICT tools and services; this support is offered more effectively in cybercafés. Libraries and telecenters maintain a social-development mission, and their staff offers, or is expected to offer, more complex infomediary services in line with the attributes described by Schilderman (2002). Libraries have a bigger digital gap to fill, and users perceive them as the venues with the least staff capacity, training, and disposition to meet local needs.

COMMUNITY ENGAGEMENT IN PUBLIC ACCESS VENUES

Having explored the role of infomediaries in public access venues, we turn to the other critical factor for success that emerged from our study. In addition to infomediaries, our study shows the importance of community involvement for the success of public access venues, especially in community libraries and telecenters. Community engagement of the local population determines the content and services an information venue provides, ensuring the local needs and priorities are addressed. While cybercafés have few proactive community-engagement plans, telecenters and community libraries often engage community stakeholders in the definition, management, and direction of the venues.

Community engagement is an important feature of community libraries and telecenters in order to assure that information is context specific. Bieber et al. (2007) discussed community engagement in terms of three main activities: (1) defining the community, (2) collecting new or existing information in collaboration with community members, and (3) assessing the community’s capacity. To ensure success of these three main activities, locally relevant content and context is key, as discussed by Peter Ballantyne (2002). He suggests “foreign content must be matched by the expression and communication of local knowledge that is relevant to local situations ... Local content is the expression of the locally owned and adapted knowledge of a community – where the community is defined by its location, culture, language, or area of interest.” He emphasized the need for infomediaries to “adapt and synthesize” the information “so that the external content is translated, transformed, and adjusted to suit local situations.” Although actively involving a community is a virtually nonexistent activity among cybercafés, these venues still tend to be perceived as meeting local needs more effectively than libraries. Exceptions to this general trend of cybercafé popularity are shown in instances where

there is strong community orientation, ownership, and management of the community libraries, as illustrated below in Argentina and Nepal, as well as other community centers or telecenters in Peru and South Africa.

According to researchers in Costa Rica, positive results for public access venues depend on increasing human investment. Analyzing community-information processes can provide rich insight into understanding how and why people look for information, as well as into who is involved and what information-gathering practices they use.

Argentina illustrates successful community engagement in what are called popular libraries. These popular libraries, which are unique to Argentina, are created by associations of individuals. They have a dual support system: citizen participation and the governmental Protective Commission of Popular Libraries (CONABIP), which helps create and maintain the libraries. Researchers in Argentina considered both public libraries (centrally supported and funded) and popular libraries in their analysis of libraries as public access venues. By combining public and popular libraries, our data coding ranks Argentina much higher than other countries in access, capacity, and environment in terms of community engagement.

Other community-based organizations are successful in their public-service missions when particular topics or livelihoods bring a community together. For instance, the people of the Huaral Valley of coastal Peru depend on water resources to support their agricultural livelihoods. Water resource management and irrigation infrastructure were developed by a small farmers' organization with the help of a local telecenter, which helped to install eleven agrarian information-system telecenters in rural communities. The Web-based system provides information on water management and cultivation monitoring in the Huaral Valley and surroundings. The local community-based organization was crucial for the farmers' success and sustainability. The community helped shape

the project, adapt it to the changing environment, and influence policy makers. This project is now being replicated in other valleys in coastal Peru.

In South Africa, the HIV/AIDS community centers address important community health concerns and build strong community engagement that strengthens their role as public access venues. The centers are near target communities, such as orphans, vulnerable children, or people affected with HIV/AIDS. Many community-based organizations evolve within affected communities. Given the focus on HIV/AIDS, the information tends to be specific and relevant to the needs of the target communities. No access fees are charged at the centers. Infomediaries are often utilized to bridge the gap between technology usage and disadvantaged communities.

Nepal encourages rural communities to become involved in creating centers for literacy and social empowerment. Community-owned libraries function as social centers and community resource centers. In these venues, community members gather to discuss different issues, ranging from civil liberties to human rights. Programs are conducted on health awareness, community development, and empowerment.

CONCLUSION AND IMPLICATIONS

As discussed throughout this chapter, infomediaries and community engagement are critical factors in producing successful public access venues. Key to their success is providing ICT tools and services and having a community-development orientation. Community direction is an important distinction for libraries and telecenters, both of which have strong infomediary expectations with missions of community engagement. Commercial cybercafés are more numerous but have fewer infomediaries (although public perception is that they have more infomediaries due to ICT services) and lack community engagement as part of their mission.

In the countries studied, infomediaries in libraries and telecenters play an important role in helping to provide and share information that is accessible and useful in the local context. These infomediaries have a level of education, credibility, and helpfulness valued in local communities. Infomediaries in libraries, however, tend to be part of a digital gap that contributes to libraries lagging behind in offering public access to ICT. Library staff were often unprepared to use, or offer support in, ICTs in the majority of the public libraries offering ICT. Because users increasingly seek ICT access in public access venues, the digital gap contributes to the perception of libraries having the least staff training, preparation, and disposition to help meet local needs. Cybercafés, on the other hand, play a different role than libraries or telecentres; cybercafé operators are expected to serve as infomediaries and help users with basic ICT use. Cybercafés tend to fulfill this expectation quite well. Thus, users perceive cybercafé staff as skilled and helpful with local needs.

While infomediaries may be perceived to be more skilled in cybercafés, community engagement is a critical component of the success of community libraries and telecenters. Through effective community engagement, these venues become active hubs at the center of community life serving information needs. When successful, these public access venues are truly owned and managed by the community they serve and become an integral part of local development and transformation. Nonetheless, libraries tend to be deemed irrelevant in serving today's information needs in the countries studied, while cybercafés tend to be considered the places to go for current information, which gives cybercafé users a strong sense of having their community-information needs met.

The implications of the findings discussed in this chapter are threefold:

1. In addition to offering information services, libraries need to reduce the digital gap by offering public access to ICT, thereby transforming their aura of irrelevance in public perception.
2. Libraries need to complement the infomediary skills of librarians and staff with digital literacy skills in order to offer ICT support and assistance.
3. While libraries and telecenters are not the main source of public access to ICT, they are the main source of infomediaries and community engagement. The social mission of libraries and telecenters would benefit if they strengthened their ICT infrastructure and services by increasing infomediary digitally literacy and incorporating ICT tools and services.

More research is needed to assess opportunities for libraries and telecenters to collaborate with cybercafés, such as offering cybercafés the support of trained staff to perform important infomediary and community outreach functions, and by assuring ICT services available in cybercafés are more meaningful to ensure community engagement and to address local issues.

Having established who our users are, and how to help them effectively meet their information needs through infomediaries and community engagement, we now turn to another critical factor in the success of public access venues: trust and perception of venues.

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ENDNOTES

¹ An earlier version of this paper was presented at *iConference 2010*, Urbana-Champaign, Illinois, Feb 2010.

² While the numbers for libraries tend to be fairly reliable, the numbers for telecenters and, especially, cybercafés are estimates by local researchers. Estimates for number of cybercafés vary widely and are extremely difficult to corroborate given the data-collection informality, lack of organizing body, and quick turnover of these venues.

³ All country reports are publicly available at <http://tascha.uw.edu/research/landscape-study/>. We refer to each one by country name.

Chapter 4

Perceptions of Trust: Safety, Credibility, and “Cool”

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ABSTRACT

Having explored typical public-access-venue users (male or female, young, moderately educated, lower-middle income level, and most likely in an urban setting) and how libraries, telecenters, and cybercafés can effectively meet these users’ information needs, the authors now look beyond the critical elements of infomediaries and community engagement to determine what prompts users to use one venue over another. For public access ICT to make a contribution to human development, public access venues must be trusted and used.

In this study, the authors found that trust is a key factor that drives people to actually make use of ICT in public access venues. Several factors contribute to building this trust: safety, relevance, reputation, and what is considered “cool.” They discuss these factors throughout this chapter with a particular emphasis on the “cool factor,” which is a relatively new concept in academic literature, especially in the realm of ICT.

INTRODUCTION

Before we define “cool,” we will briefly look at notions of trust and how it has been used in the realm of ICT. Three conditions are common to definitions of trust: trust is identified with a person’s belief rather than their behavior or action,

trust refers to beliefs about the likely behavior of another person, and trust is important where context is complex, i.e. where there is no easy contractual relation or enforcement (Lazaric & Lorenz, 1998). Particular to ICT, Roberts (2000) analyzes the importance of trust for knowledge transfer when using ICT and suggests that the risks

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and uncertainties of exchanging knowledge using ICT are reduced by a high level of trust in ICT. Recent research on trust and ICT has centered around building social capital. Onyx and Bullen (2000) suggest five themes that make up social capital: networks, reciprocity, trust, shared norms, and social agency. Pigg and Crank (2004) add the concepts of “bounded solidarity” and “enforceable trust,” and suggest a framework to assess ICT based on five components related to social capital: networks, resources for action, reciprocity transactions, bounded solidarity, and enforceable trust. To further our understanding of trust and how it relates to use of public access venues, we analyzed safety, credibility, and reputation as factors that mirror the notions of networks, reciprocity, shared norms, and social agency presented above. Finally, we base our analysis of “cool” on the notion of bounded solidarity; we regard “cool” as an indicator of trust for users of ICT in public access venues.

We found little research in the academic literature about what constitutes “cool;” it, therefore, remains a concept that needs further research to understand it as an important dimension of trust. A recent study about social networking identifies “cool” as an important feature for successful social media applications: “Elusive yet identifiable, cool means different things to different people. ... Cool has evolved to be adopted by Caucasians in the U.S. and throughout the Western world as a characteristic of youth. Being cool is important to youth, and it drives billions of dollars of consumer purchases globally every year. Product adoption and diffusion among youth often relies on the cool factor for teens to recommend the product to their friends” (Neale & Russell-Bennett, 2009). The perception of “cool” emerged in our study as a set of subjective perceptions that make public access to ICT attractive: a combination of unrestricted Internet access, friendly operators, and comfortable space for social interaction.

As discussed earlier in this volume, young people are the primary users of public access to ICT.

And “cool” is often connected to youth because they are most often the sector of the population who define it and care about it. Their perception of what is “cool” also contributes to venue use. The concept of “youthscapes” and youths’ use of media, as described by Maira and Soep (2005), is useful to understanding youth use of public access venues. Since youth are the most frequent users of public access computing, knowing where youth go and how they use the facilities available to them is important: “Young people participate in social relations; use and invent technology; earn, spend, need, desire, and despise money; comprise target markets while producing their own original media; and formulate modes of citizenship out of the various ideologies they create, sustain, and disrupt...while conceiving of youth as a shifting group of people that is simultaneously a deeply ideological category” (Maira & Soep, 2005).

If youth are indeed a deeply ideological category, public access venues that seek to foster community development should promote an environment deemed “cool,” where young people will want to go to use services available to them. Research on community radio has shown that in order for young people to be engaged, people, places and things must “elicit social and emotional involvement and therefore a high level of motivation to participate” (Chavez & Soep, 2005, p. 415). This kind of emotional involvement and motivation to participate found in community radio is also important in public access computing, especially if public access venues want to attract youth toward activities that promote community development.

Figure 1 summarizes our findings in relation to the main components of trust and how they are perceived in libraries, telecenters, and cybercafés. The following sections will describe each of the components in more detail, grounded in the data that emerged from each type of public access venue studied across all 25 countries.

Figure 1. Overview of perceptions of trust in libraries, telecenters, and cybercafés

Dimensions of Trust	Perceptions of Libraries	Perceptions of Telecenters	Perceptions of Cybercafés
Safety	Considered physically safe Considered socially safe Cyber safety not reported	Physical safety varies Considered socially safe Cyber safety not reported	Physical safety varies Generally not socially safe for women and children Cyber safety not reported
Relevance	Highly credible Does not meet local needs Not perceived as relevant	Somewhat credible Meets user needs more than libraries Perceived as more relevant than libraries	Least credible Meets user needs Perceived as most relevant
Reputation	Highest political support Lowest popular support	Political support varies Higher popular support than libraries	Political support is not an issue Highest popular support
Cool	Not perceived as cool	Rarely perceived as cool	Perceived as most cool

PERCEPTIONS OF SAFETY

Safety is crucial to trust. Successful use of ICT in public access venues requires that they are perceived as safe in three ways: physically, socially, and technologically. Personal safety frequently has to do with the location of the venue (physical safety): crime rates in the neighborhood and in the venue itself, sufficient security to go to and from the venue, and perceived safety at the venue itself are some of the most salient features. Social safety is related to whether it is socially acceptable for certain groups of people to visit a particular type of venue or location. Social safety is especially important for women, children, and minorities, especially where there are restrictions on whether it is socially acceptable for them to go alone to the public access venue, to spend time there alone, or to interact with operators in the venue. Technological safety or cyber safety primarily pertains to protection from computer viruses, although it also includes privacy and security of personal data and online transactions. Of all safety concerns, cyber safety was the least reported in the countries studied.

Combining all three elements of physical, social, and technological safety, and across all

countries and venues studied, the perception of safety tends to be higher in telecenters than the other venues, medium for cybercafés, and lowest for libraries. It is noteworthy that while libraries tend to be perceived as safe, their location tends to be seen as the least convenient, and with the least convenient opening hours. Telecenters, on the other hand, are generally perceived to be more conveniently located than other venues, as they tend to be located especially in underserved areas where there are no other public access venues available. Cybercafés tend to be perceived as having the best opening hours and tend to be in convenient locations, although we know from previous chapters that they are located mostly in urban areas.

Physical Safety

The physical safety of venues is of special concern. Public libraries tend to be perceived as places with better physical safety than other venues. This sense of safety is frequently because of their location or their association with a trusted government or nonprofit organization. For example, in Ecuador: “libraries are perceived as trustable and secure places, especially for kids which are the majority

of their users... Libraries are appropriated, trusted and integrated by students who use them; the rest of the community positively value their service but do not use it.”² The strong community-building focus of telecenters adds to the perceived safety of the venue, even if it is located in an unsafe area. For example, telecenters in Brazil tend to be located in places with high insecurity and crime, but: “Telecenters are seen as safe places because they are located inside community-based organizations or government departments that serve low income populations. Many of these places run daycare and after-school activities and have a strong connection to the local community. As a result, drug dealers, robbers and violent gangs often respect these organizations, as their own children often benefit from their services.”

Social Safety

Libraries and telecenters tend to fulfill an important role in countries where it is not socially appropriate for women be alone in public places, or without the company of a man: libraries are frequently perceived as acceptable places for women to be alone or with their children. The gender of the librarian or operator is also an important consideration in numerous countries: female operators make it easier for women to visit venues and make more active use of the venue’s resources. More details of the gender differences in public access venues are discussed in Chapter Six.

A prime example of the importance of female operators is in Algeria, where females are discouraged from using cybercafés except where there is a female operator. Female operators increase female usage considerably: “Social traditions discourage female usage of cybercafés, consequently females constitute less than 30% of the users in urban areas and less than 10% in the rural and desert regions, although females constitute a majority of the users when the venue is run by a woman.”

Similarly, in Bangladesh and the Philippines, the presence of female staff in telecenters actually attracts female users. In Sri Lanka, there are socio-cultural barriers that keep women, especially Muslim women, from going to public places without a male escort, but libraries are perceived as socially acceptable places for women to visit, even if they are alone.

While public libraries tend to be perceived as especially safe for women and children, cybercafés tend to be perceived as particularly unsafe for children, regardless of the gender of the operator, especially on account of potential exposure to pornography and other “unsuitable” content, games, or drugs. For example, in Kazakhstan: “There are some concerns that parents have over safety of their children at some computer gaming clubs, which are internet cafes at the same time. These concerns are limited to children staying long hours at internet and gaming clubs, missing classes at school and being subject to various influences (i.e. drugs).”

Cyber Safety

While physical safety and social appropriateness were very common topics in all venues and in all countries in the study, technological or cyber safety was infrequently mentioned as a problem, except for dealing with viruses in computers, and occasional mentions of privacy concerns to protect the screen from the eyes of onlookers. In Mongolia, for example: “Many of the venue operators that were interviewed stated that they contend with viruses on a daily basis, and that this is exasperated by the number of users who bring portable storage devices, such as flash sticks, into the centers. Having to repair damage caused by the viruses often means that computer terminals are not available for users, and that equipment is quickly damaged, with little chance for it to be replaced.”

PERCEPTIONS OF RELEVANCE

In addition to safety, relevancy of a public access venue is significant in building a user's trust. We identified two distinct themes in relation to relevance that have dramatically different manifestations for public libraries, telecenters, and cybercafés: meeting local needs (updated, locally relevant content, available in local languages, and supported with relevant resources and skills) and being credible sources of information (credibility and censorship).

While libraries tend to be perceived as highly credible sources of information, they also tend to be perceived as having very little relevance with regards to meeting local needs.

Credibility

The general perception about the credibility of information found in libraries is succinctly presented by researchers in Georgia and Peru. In Peru, "Libraries are trusted as a 'cultural place' and are considered safe, but the general perception about the information they offer is that it is outdated." In Georgia, on the other hand, "no one doubts the reliability of the information of the Library. It enjoys high level of trust among all the categories of the population. As it is generally perceived the library offers a bit old but completely reliable information."

This is a recurring theme in most countries studied, where libraries are perceived to be safe and highly credible sources of information, but they are generally perceived to be outdated and, therefore, not very useful. In Brazil, "the population sees libraries as safe places; [where] most important information accessed is printed information from known and reliable sources." Due to respect for print media, and their association with traditional or government institutions, public libraries in almost all countries studied are considered to be safe, secure, and to provide trusted information.

Meeting Local Needs

If libraries tend to rank highest in the credibility of the information they provide, they also tend to rank lowest in the utility of the information they provide to solve people's information needs. This ranking is mostly due to an image of libraries as anachronic and outdated, with little investment in new materials and resources, and lagging behind in the provision of fast, easy access to updated information and resources provided in local languages, and well as a lack of ability to help solve local needs. Telecenters and cybercafés, with their access to online resources, tend to rank much higher than libraries in meeting local population demands.

The case of Peru is a salient example of the disdain for the utility of libraries: "ICT access is considered a sign of progress and venues that provide it are appreciated by most of the population. ... [Libraries] are oriented to serve students, so students are the main users. Focus of services and contents in this target group is reinforced by public perception that libraries are to attend just students. If libraries have some updated contents, students go frequently, especially if there are not other information sources in their community (as cybercafés). If libraries have a collection completely outdated, they are empty; this situation is unfortunately very common."

In sum, while libraries tend to enjoy higher credibility than other public access venues for the reliability of the information they offer, they tend to suffer from very low utility due to outdated resources and lack of locally relevant content. Students appear to be the best suited users of libraries: they are safe for children and they offer information resources that are credible, even if out of date. The researchers from Kazakhstan summarize it nicely: "The population trusts libraries, but mostly people do not think about [them]."

PERCEPTIONS OF REPUTATION

The reputation of a public access venue either enables trust or discourages it. Users' perceived trust in ICT in public access venues can be inherited from the good or bad reputation of the institutions hosting the venue. We found two distinct types of institutional reputations: one related to the government support for the venue, and another quite different one related to popular or community support for the venue. While political support tends to be highest for libraries across all countries, libraries also tend to have the lowest levels of popular support (with a notable exception, Argentina, where popular support for community libraries is highest). Overall, there tends to be little difference in the political or popular support for telecenters or cybercafés.

In addition to the institutional reputation, we found significant differences in the perceived reputation of the people operating the different venues, particularly in relation to staff skills, capacity, and training. Staff skills include their level of training, their degree of digital literacy, and their disposition and attitude to support the information needs of the users. Overall, public libraries tend to be perceived as having the lowest staff capacity and training, while cybercafés tend to rank highest in this regard.

Combining the institutional reputation (political and popular support), as well as staff capacity and training, cybercafés tend to have a higher reputation overall, while public libraries tend to have the lowest reputation of all venues.

Institutional Reputation

Political support for public access venues tends to be highest for libraries, and of all countries it is highest in Argentina, Malaysia, and Nepal. In Argentina, "libraries have occupied an outstanding place in equilibrating access to education and information for the social sectors that had not reached full social inclusion. The State and its

public policies had a complex political relationship with social initiatives. For some periods they have encouraged and supported their development; for other periods they have inhibited it. At present, the State is supporting information venues." The note about being supported "at present" is especially important, since most countries report the level of government support changes over time.

The most dramatic change, however, is illustrated in countries that were formerly part of the Soviet Union (Kazakhstan, Kyrgyzstan, Georgia, and Moldova) or very close to its sphere of influence (Mongolia). These countries exhibit a common trait in the perception of libraries as part of the legacy of the Soviet era, as described in Kazakhstan: "The traditional opinion is that libraries are not prestigious places to visit. The traditions rooted back in the Soviet era are that libraries are viewed as book storage facilities and are good for scientists, students, and retirees. Internet cafes are becoming more popular with the population."

In other contexts, the institutional reputation that is inherited by the public access venue is positive. For example, in Peru "telecenters and their technology are more trusted and better appropriated when they are owned by local organizations or have the support of them," which reinforces what we have found about community engagement as a critical factor for meeting information needs, as discussed in the previous chapter. The case of Sri Lanka illustrates a common feature of telecenters hosted by reputable institutions, themselves perceived to be of service to the community: "With a history of agricultural extension work behind them, the Rural Agricultural Knowledge Centers provide locally relevant content to the farming community, which it has used to increase productivity and revenue. The farmers have trust in the technology offered to them especially because of the long association they have had with the Department of Agriculture and its field officers... The Rural Agricultural Knowledge Centers are also well accepted by the community they serve as this

service is backed by a government institution that had been disseminating information to the farmer community and addressing their problems over a period of time.”

Personal Reputation: Trusted Staff

In the previous chapter, we demonstrated the importance of infomediaries, particularly venue staff, in meeting information needs. Infomediaries are crucial in the reputation of the venue as well. The reputation and credibility of the public access venues can be highly influenced by the reputation of the staff (librarian or operator) that manages the venue and works with users to help them solve their information needs. While it would seem that all public access venues find a way to serve the information needs of their users, libraries are at a disadvantage in that they are perceived as outdated and of interest only to students, even if the information they provide is very credible. What seems to really set them apart is the fact that many of them do not offer ICT to the public, and even those that do offer ICT tend to have staff and librarians that are not very digitally literate, whereas cybercafés, and to a lesser extent, telecenters, are perceived to have staff that are knowledgeable and helpful in ICT use.

PERCEPTION OF “COOL”

Along with safety, relevance, and reputation as determining factors toward the trust of a public access venue, we identified early in the research process a trend that highlights the importance of the “cool” factor to drive usage of ICT in public access venues. The perception of “cool” emerged in our study as a set of subjective perceptions that make public access to ICT attractive: a combination of unrestricted Internet access, friendly operators, and comfortable space for social interaction. We know that young people constitute an overwhelming majority of public-access-venue users, so it

only makes sense to look at the places that youth think are “cool.” Youth appear to be finding public access venues (cybercafés in particular) “cool” places to hang out and socialize with friends, online and offline. While cybercafés tend to be perceived as very “cool,” telecenters and libraries tend to discourage or block the social interactions that make using ICT “cool,” especially for youth. The decision to block or discourage social interactions (face to face or online) is one element of what constitutes legitimate or illegitimate, instrumental or non-instrumental uses of public access computing, which we will discuss in more detail below.

ICT as Cool

At a superficial level, offering or having public access to ICT is in itself perceived as something “cool.” In Bangladesh, “Internet [itself] is the ‘cool’ factor in public perception in relation to public access venues.” In Egypt, “the awareness of digital ICT is perceived as a strong asset in general and cool.” A variation on the notion of “cool” also emerged in the findings of our study: the government’s perception of whether offering ICT services is a cool idea. From the government perspective, providing public access to ICT appears to be a “cool” thing in several countries. For example, in Namibia “among politicians the ‘buzz [cool] factor’ of ICT is the creation of access points in each of their own constituencies.” In Turkey, “for the government, the real motivation is to enable the country to have an e-society via its new e-Transformation strategy.” This government notion of “cool” could be further capitalized to strengthen public access ICT.

Meeting Friends as Cool

For users, particularly young users, a “cool” venue can mean more than public access to ICT. In Costa Rica, for example, “there is a big contrast between what the public consider “cool” and the

government policies. In general, users consider more “cool” [going to] places that have interactive learning processes. Where they can gather to enjoy, to develop sharing activities... libraries offer some of these spaces, but in general the conditions of use are more controlled by previous established rules (silence, limitation on uses and lack of resources).” This emphasis on public access venues as gathering places, spaces for socializing and “hanging out” with friends, is highlighted in several countries. The case of Nepal clearly illustrates this trend: “As far as public perception regarding “cool” is considered, most people in the rural and semi-rural parts of the country have accepted such venues as the major hanging-out spot and long to go to such places not only to get the required information, but also to meet friends and acquaintances. Even in urban areas, libraries have become a hotspot for meeting friends. Such kinds of perceptions have heavily affected the legitimate use of such venues.

Getting together with friends in a “cool” space includes getting together with friends online. Social networking and online gaming is gaining popularity among youth in many countries, and public access venues that enable this type of interaction are more likely to be perceived as “cool.” In Mongolia, “many Mongolians, especially younger urban Mongolians, view Internet centers as place in which they can hang out, chat online, and search the web.” Similarly, in Brazil, “according to users, cybercafés are the ‘coolest’ venue to hang out. Most users visit cybercafés for entertainment, their hours are extensive, and they often are associated with a food service. Importantly, there are no restrictions on the use of social networking websites like Orkut, MySpace, Facebook and instant messaging software like MSN or Skype.” In the Philippines, “Internet cafes are perceived to be ‘cool’ places to hang out in especially for teenage boys since this where they, along with their friends, play the latest online games.” Libraries and telecenters, therefore, need

to welcome and promote social interaction, online and offline, if they are to be attractive to youth.

“Cool” and Instrumental Uses of ICT

We find a clear trend of using public access venues as meeting places, and ICT in public access venues as tools for social interaction. Nonetheless, this trend is at odds with the intended practices in many libraries and telecenters, which is to use ICT for instrumental purposes: gathering information for school homework or for social and economic development purposes (agriculture, health, employment, etc.). In fact, our study indicates that many telecenters and libraries consider other “non-instrumental” uses of ICT (social networking, online games, instant messenger, etc.) as inappropriate in the venue, and prevent or block users from accessing such sites. In Kyrgyzstan, not only do the Internet clubs (telecenters) not allow game playing or access to restricted sites, they also install digital cameras to monitor Internet activity. Similarly, in Costa Rica, “some [libraries] have applications that block social networking sites, chat rooms, pornography, downloading and games. Others are not that strict in terms of Internet uses, and allow users to chat and check social networking sites if the computers are not been used for more legitimated uses, as Internet searching, word processing and homework. It will depend on the librarian to determinate what can and what cannot be done in the computers.”

We know that urban, educated, and young men and women are the main users of ICT in public access venues, so it is not surprising to find users preferring “cool” venues that allow them to do the kinds of things they want to do: hang out with their friends, socialize, play games. From the perspective of the public access venues that have a community-development goal, there appears to be a fork in the road: is ICT intended to be for “serious,” instrumental uses for social and economic development, or can it also be used for socializing and other non-instrumental purposes

as well? The researchers in Sri Lanka describe the situation in a very compelling manner:

In both urban and rural commercial venues more users engaged in social networking than in looking for information on business or commerce. Although information on education was sought very few looked for information of a development nature. They looked for entertainment and information of a personal nature in both urban and non urban venues. The services are both supply and demand driven and it appeared that the commercial venues with their entrepreneurial spirit were willing to take risks to make the underserved more technology savvy than ICT4D (ICT for Development) venues.

For instance the publicly funded venues did not allow or discouraged users to play games or chat but some Internet cafes had actually made special provision for users to do so. At an Internet café in the Central Province the researchers saw school boys, not yet in their teens, in their school uniform leaving the venue after playing games. “Do you allow them to play games? Where do they get the money?” we asked the operator. “Of course I do. In fact I have a separate area for them. I don’t know from where they get the money but they pay and I allow them to play games even for 15 minutes. Maybe they use the bus fare that their parents give and walk back home. Aren’t games the best way to get children especially hooked on the computer?” she asked us.

While some venues define social networking, games, and file downloads as illegitimate uses of ICT in accordance to their missions, these seem to be the very uses that make public access venues “cool” in the eyes of the young, urban, and educated users. If these “non-instrumental” uses are what attract people to “cool” public access venues, and “cool” becomes a more important factor in building trust than safety, credibility, or reputation of the venue, then libraries and telecenters may have to revisit their definition of allowable instrumental and non-instrumental uses in order to gain the trust and serve the needs of their users.

The setting of limits to non-instrumental uses is further complicated by the use of public access ICT for pornography, which in our view, is a different type of non-instrumental use than social networking or games. While accessing porn may be a driving force for Internet use and a strong source of revenue for cybercafés, there was general consensus on the need to block or prohibit porn in libraries and telecentres among all research teams in this study. Libraries, and in some cases telecentres, are frequently perceived as safe because parents know their kids will not be exposed to porn. But porn in public access computing is an important and understudied issue. As summed up by focus-group participants in Colombia, “all people want is Facebook and porn.” More research is needed on non-instrumental uses of ICT, and porn in particular, and their relation to public access computing and community development, in order to better understand the challenges faced by public access venues that want to offer ICT as a contribution to social and economic development of underserved communities.

CONCLUSION

We have seen how trust is an important component in public access to ICT. We suggest that trust has to do with the perceived safety, relevance, reputation, and “cool” of the public access venues, and discussed each one of these categories in some detail. Overall, perceptions of safety tend to be quite comparable across all three types of venues. While physical safety tends to be higher in libraries, the location of telecenters tends to be perceived as more convenient, and libraries tend to be perceived as being of interest only to students or researchers. Telecenters and libraries tend to be used with a greater sense of safety and ease by women in many countries, especially when the operators are also women. While we don’t have sufficient data to analyze cyber safety in great detail, it appears computer viruses are the

most common problem for both users and venue operators. In addition, there is little awareness of online privacy and security issues in most venues and in the majority of the countries we studied.

While safety is pretty consistent across all three types of venues, perceptions of relevance of the information people find in libraries, telecenters, and cybercafés varies significantly: while information found in libraries tends to be the most credible, it also tends to be the one least likely to meet local users' information needs, with the possible exception of students. Libraries may be seen as good sources of credible information, but they tend to be perceived as outdated and irrelevant to the majority of the population.

The reputation of the institutions hosting the venues, as well as of the persons working in them, is also critical to the users' perception of trust in the venue. While libraries tend to have good institutional reputations and more political support than other venues, they also tend to have the lowest level of popular support. Similarly, library staff tends to have the lowest capacity and training to meet the needs of ICT users in public access venues: this is exacerbated by the fact that a high proportion of libraries do not offer ICT, and many of the libraries that do offer ICT do not necessarily have trained staff to help users with the ICT tools, which reduces users' trust in libraries.

The final dimension of trust we analyze is the "cool" factor, an emerging driver that requires further research to fully grasp its nuances and complexity and impact. Broadly speaking, it seems that the fact of offering access to ICT is in itself cool. And all things being equal, youth tend to favor "cool" venues where they can meet and socialize with their friends, in person and online, and where they can use ICT for communication and social networking: chat, instant messenger, social networking sites, games. Furthermore, the role of porn in public access computing needs to be better understood. While these uses tend to be discouraged or blocked in libraries and telecenters, they are not only allowed in cybercafés, they are

encouraged. More research on the role of these non-instrumental uses and their effects on social and economic development is needed to better understand the challenges they present to libraries and telecentres and their efforts to contribute to community development.

What have we learned so far about public access venues in this book? Users are generally young, educated, and have moderate income levels. Infomediaries and community engagement are key to meeting the information needs of users. Trust, enabled by perceptions of safety, relevance, reputation, and "coolness," plays a significant role in use of public access venues. Having looked at our users, how to meet their information needs, and how to encourage use of venues, we now look at some factors that can discourage use, or act as a barrier to use. For example, do fees matter? This will be explored that in more detail in the next chapter.

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ENDNOTES

- ¹ An earlier version of this chapter was published in *Information Technology & People*, Vol. 23, no. 3, p. 247-264.
- ² Detailed country reports for all 25 countries are available online at <http://tascha.uw.edu/research/landscape-study/>. In the text we refer to them by country name.

Chapter 5

“Free” Service or “Good” Service: What Attracts Users to Public Access Computing Venues?¹

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ABSTRACT

There is a strong tradition in libraries around making their services free to all users. At the same time, cybercafés tend to charge user fees to drive their business, while telecenters fall somewhere in between: some charge a fee, some are free. When a public access venue charges a fee for use of ICT, does the fee hinder use, especially for users with lower income? Are other factors, such as relevant content and digital literacy of staff, more important in determining whether or not the venue is used, especially by underserved communities? In this chapter, the authors discuss three factors that emerged in this study as important drivers for the use of ICT in public access venues: affordability and cost of ICT use in public access venues, availability of relevant content in local languages, and the digital literacy and helpfulness of venue staff. The authors examine how these indicators influence user attitudes toward, and ultimately use of, ICT in cybercafés, libraries, and telecenters.

Their study indicates that public access venues do play an important role in meeting the needs of underserved communities, and that user fees are not the largest obstacle for people who wish to use ICT in public access venues. In other words, free access is not necessarily a strong driver for helping underserved communities make higher use of public access ICT. Even with free public access to computers and the Internet, other barriers to ICT use still remain. To help frame their findings and discussion, the authors begin with a review of the existing published literature on user fees and other barriers to use of public access venues. At the heart of this chapter lies the findings and discussion section where they offer an analysis on how influential user fees, content availability, and venue staff are in determining ICT use in public access venues. Through this analysis, they seek to have a clearer picture of what users view as incentives and barriers to their use of ICT in public access venues. To conclude, they propose recommendations for public access venues as they move forward and seek sustainability.

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LITERATURE REVIEW

What does the existing academic literature and research suggest in terms of how user fees affect ICT use in public access venues? The impact of user fees in public access venues has been only slightly investigated, especially in public libraries and telecenters, and, again, the findings are often country and venue specific. Most of the existing literature, while revealing user behavior before and after fees are introduced, does not come to any solid conclusions about whether or not fees are detrimental to venue use (Adomi, 2005; Best, Kolko, Thakur, & Aitieva, 2007; Salvador, Sherry, & Urrutia, 2005). One work that illustrates this finding is Egholm and Jochumsen’s article, “Perceptions Concerning User Fees in Public Libraries” (Egholm & Jochumsen, 2000). The article outlines several public library systems that charged user fees, and offers some findings about user attitude towards fees in public libraries. In many situations, the authors note, it is not possible to identify explicit relationships between the impact of user fees on library membership and use. Even when looking at ex-public-library users, studies have shown that user fees were of little consequence in determining library use. In exploring user-fee subsidies in Kyrgyzstan telecenters, Best, Thakur, and Kolko found that distributing waivers for user fees, essentially making telecenter use free, did not increase use of ICT in telecenters among underrepresented social groups (Best, et al., 2007). Additionally, the authors found that users who reported economic benefits from using the telecenter did not take advantage of the user-fee coupons.

The methods in which public access venues charge user fees vary. One model, popular in cybercafés and telecenters, is per-transaction, or pay-per-use, fees where users are charged by the minute or hour of ICT use. Another model is a subscription-based fee system, where users are charged for ICT use through a weekly, monthly, or, most commonly, annual fee. In looking at rural computer kiosks, a form of public access

to ICT, Kuriyan and Toyama found that user perceptions of fees differed depending on which model was employed through user and non-user interviews – the authors assert that annual fees or subscription-based models, either as explicit ICT subscriptions, or included in another subscription (e.g., farmer cooperative membership fees), are more widely accepted by users, while many users and non-users alike feel that per-transaction rates are too high (Kuriyan & Toyama, 2007).

Given the literature’s lack of concrete conclusions around the role user fees play in venue use, we took a look at another characteristic of venues that emerged as an important factor in the results of this study: the role of venue staff. We discussed the role of venue staff as infomediaries in Chapter Three. As noted in that chapter, as infomediaries, staff in public access venues can be evaluated on their digital literacy and willingness to help users as a measure of their impact on ICT use. In their overview of literature and research on public access to ICTs, Sey and Fellows write, “infomediaries... have been found to be important contributors to the viability and sustainability of a public access venue, helping attract users to the site, and providing guidance and guiding users unfamiliar with ICTs” (Sey & Fellows, 2009, p. 7). Other literature also suggests that venue staff is critical in user experience of the venue and its overall sustainability (Best & Kumar, 2008; Bossio, 2004; Ulrich, 2004; Whyte, 2000).

While the literature and research currently available suggests that charging user fees for ICT access may not be detrimental to the success of a public access venue, most of the literature places particular emphasis on staff training and helpfulness, as well as availability of content, as the key drivers to ICT use.

FINDINGS AND DISCUSSION

The three most salient indicators of user attitudes and perceptions that can hinder the use of public access venues were: cost and affordability of

venue, availability of relevant information in local languages, and digital literacy and helpfulness of venue staff. Through this analysis, as stated in the introduction to this chapter, we seek to have a clearer picture of what users view as incentives and barriers to their use of ICT in public access venues. To summarize and frame our findings, the Figure 1 illustrates affordability, staff, and content in each of the three types of public access venues we studied. Each of these variables is discussed in more detail in Figure 1.

Affordability and Cost

Given that public access users are generally young people with low-to-middle income levels, we wanted to investigate whether or not affordability of venues is relevant to use. If a venue charges a fee, does it discourage the young users from visiting and using the venue? Let’s frame this discussion by looking at whether or not there is a difference between affordability among the three types of venues. Our analysis shows that the difference in affordability between public libraries, telecenters, and cybercafés is minimal. Unsurprisingly, the most affordable venue overall was public libraries, where cost in relation to daily needs was lower (or free) than telecenters and cybercafés. Cybercafés

were seen as the least affordable venue, but only slightly less affordable than telecenters.

The trend of public libraries being the most affordable public access venue was consistent across most of the 25 countries.² One notable exception is found in Bangladesh, where 33% of the users interviewed reported the cost of ICT services in public libraries was not affordable. Public libraries in Bangladesh charge an annual fee, and it is reported that fees are much lower in other venues than libraries. The majority (75%) of ICT users in public libraries fall in the middle-income bracket. Furthermore, in Bangladesh, while public libraries are seen as less affordable than other public access venues, cost was reported as a significant barrier to ICT use by all user populations across venues except in non-urban community libraries.

With few exceptions (Bangladesh, as noted above, but also Egypt, South Africa, and Sri Lanka), all public access venues (including, of course, public libraries) are seen as affordable, and for the most part, cost is not a significant barrier to ICT use by most user populations. An example of statements echoed in most of the country reports, across all venues, is illustrated succinctly in Brazil’s report on cybercafés: “Cybercafés charge for services (Internet access), but their fees are affordable, as most cybercafés are located in

Figure 1.

	Libraries	Telecenters	Cybercafés
Cost	Not a factor in use Most affordable venue <i>Exception: Bangladesh</i>	Not a factor in use Less affordable than libraries <i>Exception: South Africa</i>	Rarely a factor in use Least affordable venue <i>Exception: Egypt, Sri Lanka</i>
Staff	Significant factor in use Least helpful; least amount of digital literacy among staff <i>Exception: Argentina</i>	Somewhat of a factor in use More helpful than libraries; more digital literacy among staff <i>Exception: Nepal</i>	Not a factor in use Most helpful staff; most likely to have digital literacy among staff <i>Exception: Nepal</i>
Content	Significant factor in use Significant lack of relevant content in local languages <i>Exception: Argentina</i>	Somewhat of a factor in use Moderate lack of relevant content in local languages <i>Exception: South Africa</i>	Significant factor in use Significant lack of relevant content in local languages <i>Exception: None</i>

low-income communities and are self-sustaining.” Fees and cost of public access use do not seem to be a very influential factor in determining venue use. This finding is corroborated by researchers in Colombia, where cost is ranked #8 in a list of ten important variables that drive users’ choice of public access venues in a single community.

While users do not view cost as a barrier for use of public access venues, it is interesting to point out that operators of the venue may think people are not using the venue due to fees, as indicated in Nepalese libraries and telecenters: “The services offered are quite affordable to the population in general. For high income and middle income population, the services are quite affordable whereas for the low income group, the general services as well as digital ICT services are moderately affordable. Libraries charge a nominal fee for the use of service available in the venue. Whereas 25% librarians believe that the services and technologies are not very affordable to the general public, only 11% of the users, on the other hand feel that the affordability is a barrier for use of services.” Just as librarians in Nepal thought cost was a hindrance to use, although users did not think so, telecenter staff also believed cost was a barrier, whereas users did not: “Only 1 user of the 13 users surveyed in a telecenter said that cost is a barrier for using the ICT services in the venue. However, none of the users said that cost is a hindrance to using the services in the venue as a whole, which itself proves that the prices offered in telecenters are very affordable to the users. Many operators (nearly 50%) were of the opinion that cost is major hindrance for them.”

As we have discussed in previous chapters, the findings of our study suggest that public libraries have lower overall ICT use and more negative community perceptions than other venues, so what is influencing, or rather discouraging, user behavior? Let’s explore two additional dimensions, other than cost, which appear to drive users’ preference for one type of venue over another: venue staff and content availability.

Venue Staff

We discovered in Chapter Three that many users of public access venues rely on the venue staff to assist them in their information needs and ICT use. The results of our study suggest that a crucial variable that informs users’ choice of a public access venue is, more than cost, the venue staff’s capacity (particularly their digital literacy) and willingness to help users employ the ICT services offered.

To emphasize the importance of this variable, let us point out that while the interpretive ranks for affordability were fairly consistent across public libraries, telecenters, and cybercafés in most countries, a larger variance is found in the indicators for analyzing venue staff preparedness and support. While public libraries are seen as the most affordable public access venue (even though by a small margin), they fall well behind cybercafés and telecenters in regard to the digital literacy of the staff and the willingness of staff to help users. Not much of a difference is seen between telecenters and cybercafés, although the staff at cybercafés are viewed as slightly more ICT literate and helpful than those in telecenters. An example of staff helpfulness and digital literacy can be found in cybercafés in Moldova, as in-country researchers noted, “In Moldova there are many skilled and passionate young operators, who work in such units, even with a modest salary, only to have the opportunity to go in for the hobby. Operators are usually ready to help the visitors. They recommend sites, directories, provide technical assistance etc.”

Public libraries, however, lag behind telecenters and cybercafés in staff helpfulness, as demonstrated in Algeria: “In general, staff of public libraries is supposed to be librarians. This is not always true. Also, even when they are librarians they aren’t always good librarians especially when it consists on encouraging people to use services. And even when they are good librarians they aren’t always good in ICTs.” Most countries showed

similar results in terms of staff willingness to help users with their information needs and ICT use, particularly telecenters and cybercafés. However, significant differences were identified in the digital literacy among telecenters and public libraries in a few of the countries. Countries with low digital literacy of library staff include Kazakhstan, Nepal, Sri Lanka, and Uganda. In Kazakhstan, while most staff in cybercafés are information technology students and trained in ICT, most public library and telecenter staff have almost no ICT training. Another notable exception is the case of Nepal. While 80% of telecenter staff has reported some type of computer training, only 50% of cybercafé staff has engaged in ICT training, and most public and community library staff have not received any computer or technology training at all.

Consistent with the existing academic literature discussed earlier in this chapter, our study indicates that capacity and disposition of venue staff plays a larger role in driving use of public access venues than do user fees. Level of digital literacy among staff, as well as willingness to help users, affect the interest of users in choosing one venue type over another. The next question we asked ourselves was, does the actual content available through ICT play a role in user perception and utilization of a public access venue?

Content Availability

Abundance of digital content is clearly not a problem in today’s information age, especially for those who can read English and who live in a wealthy country or part of town where some form of public access venue is relatively accessible. In developing regions where English is not the native language, however, availability of relevant and accessible content may be an issue. In the countries examined through this study, the difficulties of getting to locally relevant content, and especially content available in local languages, is seen as a stronger barrier to ICT use than cost of use or venue staff literacy and helpfulness. It is

important to note that while the same content is available on the Internet at any public access location (except for things that are explicitly banned in libraries or in some telecenters, such as porn or music download sites), this finding emphasizes the importance of users’ *perception* of the content that is available at the venues, not the *absolute* value or local relevance of the information. Across venues, public libraries again fell behind in providing users with content they viewed as relevant and accessible in local languages. As with venue-staff indicators, telecenters and cybercafés did not rank very differently in this measure. In contrast, however, telecenters were slightly ahead of cybercafés in issues around content. Many telecenters are embedded in an organization that provides content-specific community support in areas such as health, agriculture, or small business, which explains the perception of telecenters as providing more relevant content to users.

Country-by-country analysis of availability of locally relevant content or content in local languages revealed the most variance across venues, as opposed to affordability and venue-staff indicators. In Georgia, for example, lack of content was seen as the number one barrier by over a third of users surveyed in both public libraries and cybercafés. Another country with a considerable lack of locally relevant content in local languages is Ecuador. As in Georgia, users in Ecuador cited lack of relevant materials in languages accessible to the local population as the main barrier to use of ICT services in public access venues. The lack of relevant and comprehensible content is noted across cybercafés, public libraries, and telecenters in Ecuador, but is especially so in public libraries, with 75% of users indicating content as the main barrier. Two other countries that face significant challenges, across all venues, in having relevant and language-accessible content are the Dominican Republic and Indonesia. For example, in the Dominican Republic, it is noted that telecenters have not invested the time or resources into creating and disseminating locally relevant content:

“Still, an existing void is the lack of other relevant content, since telecenters have focused their attention on digital alphabetization, and development of specific contents that may answer to community problems (health, unemployment, teen pregnancy, AIDS, sexual exploitation, drug addiction, sewage handling, amongst others) has been left aside.”

Libraries and cybercafés in the Dominican Republic face similar challenges, particularly in content availability in local languages. While there are some materials in Spanish, Creole is also widely spoken and read in the Dominican Republic, and the Internet interfaces, digital content, and books do not reflect this language’s common use: “Finally, it is important to consider books in Creole when offers are presented. None of the libraries have anything on this language. There is no mass media –newspapers, television news, radio programs – on Creole. Therefore, it is essential to introduce Creole in the libraries in order to guarantee the right to have information in a democratic way.”

One exception in terms of relevant content in local languages can be seen in Argentina, particularly in libraries, where there is very high use and satisfaction with the content meeting users’ information needs. Many libraries in Argentina participate in the Citizen’s Information Program, which has created an information base for the community. Through the Citizen’s Information Program, which is disseminated through library websites and CD-ROMs in libraries not connected to the Internet, users can find information about their citizen rights, government services, health information, cultural information, and community participation.

CONCLUSION AND RECOMMENDATIONS

This chapter presented the analysis of findings of our study of user fees, staff helpfulness and digital literacy, and availability of locally relevant

content. While some exceptions were apparent, we illustrated that user fees (or absence of fees) do not hinder use of public access venues. More significant in user participation of ICT services in public access venues are issues surrounding the digital literacy and helpfulness of venue staff and relevancy of content as well as its availability and language accessibility.

In order to encourage use and appropriation of ICT services in public access venues, developers and managers of these projects and organizations should focus their efforts on increasing staff’s ICT literacy, overall skill capacity, and motivation to help users meet their information needs. Many users of public access venues do not have extensive ICT training and using computers is often new to them. The role of staff in helping the users use the ICT services to successfully retrieve information needed and desired is critical to the use and success of public access venues. In order to meet users’ information needs and desires, however, public access venues also need to offer services and content that is appropriate and relevant in the local context.

The implications of our findings are of critical importance to telecenters, and especially to public libraries. These two types of public access venues have a social mission to provide public access to information and contribute to community development, a mission that is not necessarily shared with cybercafés. But cybercafés tend to be more successful in meeting local needs of users. Users tend to perceive cybercafés as offering relevant content and good customer service and support, even though they charge user fees. By contrast, users tend to perceive libraries as outdated and irrelevant to their local needs. These kinds of issues make telecenters and public libraries face important sustainability challenges, such as decreasing funds for public access ICT initiatives. Libraries and telecenters may have the opportunity to strengthen their mission by focusing on improving staff digital literacy and customer service to meet local needs, which are generally lacking, and

should also explore ways of generating revenues through user fees.

If more relevant content and better support service can potentially drive more users to libraries and telecenters, thus potentially attracting more donor support to help sustain these venues (in addition to implementing user fees which have shown to not be a factor in driving users away), the question is, how can these venues improve the relevancy of their content? In *The ICT4D 2.0 Manifesto: Where Next for ICTs and International Development*, Heeks calls for the users of ICT to be the producers and innovators of content and services available to them (Heeks, 2009, p. 28). Instead of using the common top-down approach that infuses ICT venues with information coming from the North, venues should concentrate on addressing users’ actual information needs and wants that are relevant to them. If the content available in public access venues is not relevant, or in a language that can be understood, and if the service and support offered does not meet the needs of the local population, the venue and ICT services will remain unused. Further research could explore how enhanced staff training and integration of locally relevant content affects venue use and uptake, and assess whether venue sustainability increases with improvements in both these areas. This research could be done cross-venue, or in a subset of specific venues.

Now that we have addressed some of the factors that can be barriers to public access venue use, let’s take a look at the role of gender in public access ICT use. While we know that a public access venue user is just as likely to be female as male, does gender affect use of public access venues? Is it more critical to development that women utilize ICT services? What other issues exist surrounding gender and public access? These questions, and more, will be discussed at length in the following chapter.

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ENDNOTES

- ¹ An earlier version of this chapter was presented at iConference 2011, Seattle WA. © ACM 2011.
- ² In addition to the country chapters included in this volume, all detailed country reports are publicly available at <http://tascha.uw.edu/research/landscape-study/>. In this chapter we refer to them by country name.

Chapter 6

Gender and Public Access ICT

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ABSTRACT

Studies show that due to systemic gender biases in the use of and access to ICTs and their applications, as well as socio-cultural norms that position computing as a predominantly male activity, women in developing countries are more likely than men to face barriers to reaping the benefits of ICTs for their personal and community development. Gender analysis “asserts that power relations in class, race, ethnicity, age, and geographic location interact with gender, producing complex and hidden inequalities that affect social change” (APC WNSP, 2005). A review of recent literature on gender and ICT, and the results of the Landscape Study, suggest that there are both personal and collective benefits to women through the use of ICT, as well as barriers that prevent marginalized groups in society, and women in particular, from realizing these benefits. What are these barriers? What benefits does ICT offer women? Throughout this chapter, we will explore these barriers and benefits through examples drawn from our findings in the Landscape Study, embracing a cultural approach in analyzing the ways in which women transform their lives through the use of ICT, with a particular emphasis on ICT use through public access venues.

INTRODUCTION

Studies show that due to systemic gender biases in the use of and access to ICTs and their applications, as well as socio-cultural norms that position computing as a predominantly male activity, women in developing countries are more likely than men to face barriers to reaping the benefits of ICTs

for their personal and community development. Gender analysis “asserts that power relations in class, race, ethnicity, age, and geographic location interact with gender, producing complex and hidden inequalities that affect social change” (APC WNSP, 2005). A review of recent literature on gender and ICT, and the results of the Landscape Study, suggest that there are both personal and

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collective benefits to women through the use of ICT, as well as barriers that prevent marginalized groups in society, and women in particular, from realizing these benefits. What are these barriers? What benefits does ICT offer women? Throughout this chapter, we will explore these barriers and benefits through examples drawn from our findings in the Landscape Study, embracing a cultural approach in analyzing the ways in which women transform their lives through the use of ICT, with a particular emphasis on ICT use through public access venues.

Earlier in this book, we discussed what a typical user of public access to ICT looks like: young, with some formal education, and low-to-middle income levels. While there weren't huge discrepancies in the gender proportion of users across all venue types in all countries, use of ICT is not gender neutral. Technical, social, and cultural barriers emphasize women's exclusion from the benefits of ICT.

When women use ICTs, not only can they experience significant personal benefits, but their communities can benefit as well. In the following sections, we will explore the personal and collective benefits that result from women's use of public access computers in developing countries, as well as the barriers hindering their use of this technology. We compare what is reported in the specialized literature on gender and ICT with data from the Public Access Landscape Study. Based on these results, we suggest that development policies around ICT take the following three-pronged approach to improving ICT access for women: provide ICT training for women, establish partnerships to raise awareness of ICT benefits for women, and produce content relevant to women users.

The details discussed in this chapter are informed both by the findings of the Landscape Study and by a review of the literature of gender and ICT. The literature review did not precede the study but was done simultaneously with the analysis of a gender dimension of public access

to ICT. The findings may not be an exact reflection of any single country, but they represent a meaningful source of trends and patterns about gender and public access ICT for community.

Let us first define gender, as we will use it throughout this chapter. We frame our discussion following this definition offered by the Association for Progressive Communication (APC):² gender is defined as "a concept that refers to the social and cultural constructs that each society assigns to behaviors, characteristics, and values attributed to men and women, reinforced by symbols, laws and regulations, institutions, and perceptions" (APC WNSP, 2005). The concept of gender is not synonymous with "sex" – it does not simply refer to the biological traits men and women are born with. Rather, gender is used to understand how the concepts of femininity and masculinity are constructed (APC WNSP, 2005; Gillard, Howcroft, Mitev, & Richardson, 2008). Further, traditional gender roles are often oppressive to women and limit their opportunities (APC WNSP, 2005), including their use of ICT.

It is important to put this discussion of gender and ICT in a brief historical context. Present-day tensions are often a result of what has happened over time in the field of technology. Early feminist studies of women and information technology focused on women's under-representation in IT occupations and their over-representation in operator and clerical jobs. These studies drew attention to the disparity between men's and women's salaries in the information technology industry; the proposed solution was to increase the number and proportion of women in the IT industry (APC WNSP, 2005; Henwood, 1991a, 1991b). In the 1980s, feminists turned their attention to the gendered nature of technology itself and began calling for a technology based on women's values: "Feminists from this perspective promote women's greater humanism, pacifism, nurturance and spiritual development and seek a new vision of technology that would incorporate these values" (APC WNSP, 2005; Griffin, 1983).

A Marxist feminist perspective views technology as a neutral tool that gets leveraged for capitalist and gender oppression: “women’s exclusion from technology as a consequence of the gender division of labor and the male domination of skilled trades that developed under capitalism” (APC WNSP, 2005; Hartmann, 1976). Constructivist approaches, on the other hand, reject the notion that technology is neutral and instead argue that technology and gender are socially defined. Instead of advocating for women’s *inclusion* in work defined as technological, feminists from the Constructivist perspective suggest “a total re-evaluation of work so that many of women’s traditional tasks are recognized as skilled and technical and [are] given appropriate remuneration” (APC WNSP, 2005; Ravertz, 1965).

Given this context, let’s move towards the current thinking about technology and gender. The more recent “technology as culture” approach views technology and gender “not as fixed and given, but as cultural processes, which (like other cultural processes) are subject to ‘negotiation, contestation, and ultimately transformation’” (APC WNSP, 2005; Haraway, 1997). This perspective emphasizes the need for women to not only gain access to the knowledge available through technologies, but also to participate in knowledge creation – to transform the gendered relations of technology by becoming involved in

creating technological culture (APC WNSP, 2005; Gurumurthy, 2004).

The field of gender and ICT highlights the potential far-reaching benefits that computing can offer to women in developing countries. However, researchers agree that merely providing access to computers and the Internet is simply not enough to ensure women’s use of the technology (Cooks & Isgro, 2005; Gillard, Mitev, & Scott, 2007; Goldfarb & Prince, 2008; Gurumurthy, 2004; Huyer, 2005; Sreberny, 2005; Sreekumar, 2007; Törenli, 2005). In general, women in developing countries face significantly more cultural, social, and economic barriers to public access computer use than their male counterparts.

Figure 1 summarizes the key ideas discussed in the remainder of this chapter:

INDIVIDUAL AND COLLECTIVE BENEFITS FOR WOMEN

Much of the literature on gender and use and applications of ICTs in the developing world cites multiple benefits for women that could result from women using the technologies. Here we will focus on the benefits that affect them individually, followed by a discussion of collective benefits. In each case, we discuss the benefits in relation to existing literature on gender and ICT, as well as their manifestations in the Landscape Study.³

Figure 1. Gender benefits and barriers in use of public access to ICT

Benefits of ICT for Women		Barriers to Fully Realize Benefits
Individual	Collective	(Affect all, but especially women)
Increased self-esteem	Economic growth	Location, infrastructure, and connectivity
Reduced isolation	Improved health	Time and money
Access to markets	Improved education	Lack of relevant content
Empowerment	Capacity building	Low education and literacy
Access to health information	Cultural transformation	Social norms and perceptions

Increased Self-Esteem

One of the most commonly cited personal benefits of public access computing for women in the developing world is increased self-esteem, which is considered a necessary component to empowerment. The literature suggests that wherever women have used computers and access to the Internet for their own purposes, they often report increased self-esteem (Alumanah, 2005; Huyer, 2005; Long, 2005; Sengupta, Long, Singhal, & Shefner-Rogers, 2007), which is thought to come from the confidence gained “from mastering new skills and an unfamiliar technology” (Conway, 2003b). In the report from Bangladesh, women who used ICT services “professed a higher self-assessment and realization of their potential and worth in society.” The confidence and technological capabilities women can develop from using public access computers can help them to further their empowerment goals (Gurumurthy, 2004; Huyer, 2005).

Reduced Isolation

Another personal benefit from using the technology is reduced isolation. Several studies on gender and technology have emphasized how women in many societies are often confined to the private sphere, whereas men can freely participate in the public sphere (Long, 2005; Moreno Minguez, 2005; Obayelu & Ogunlade, 2006). According to Moreno Minguez (2005), confinement to the private sphere can be isolating and can limit opportunities for personal growth and development. He states that, “greater integration in employment, community and political life – that is, in the public sphere – widens horizons of awareness, opportunity and experience in various ways; while greater enclosure within the private world of family, household and kinship relations limits personal and social horizons” (2005). The Internet is seen as a way to connect women with family members and support networks to reduce

feelings of isolation and increase networking (Best & Maier, 2007; Gurumurthy, 2004; Sengupta, et al., 2007; Somolu, 2007). Goulding and Spacey (2003) write: “The Internet...creates opportunities for dialogue, exposing women to the issues and perspectives of other women living and working thousands of miles away.”

Access to Markets

Increased dialogue and networking can not only lead to reduced isolation, and improve one’s well-being, but also can increase access to global and local markets, thereby increasing women’s potential to earn income (Gurumurthy, 2004; Obayelu & Ogunlade, 2006). Huyer (2005) writes that the Internet can “provide women with skills, training, and market information for their small-scale enterprise[s].” Similarly, Skalli (2006) writes that Internet access for women “encourages women to think about new ways to establish professional relations, forge alliances, and broaden the scope of their interventions.” Mbarika et al. (2007) take it one step further, noting that neglecting to provide Internet access to women “deprives them and their families of income.” The Uganda report suggests that Ugandan women could improve their economic status with access to information on budgeting through the Internet. The Turkey report notes that women could use public access venues to find jobs and improve their social status in their community.

Empowerment

Access to the Internet and public computers can also lead to women’s empowerment through providing access to knowledge. One of the most commonly cited types of empowering knowledge is civic awareness, which can lead to a better understanding of women’s rights, voting, and increased civic participation. Gurumurthy (2004) writes: “E-governance programs have been initiated by some governments using ICTs to make

government services more accessible to citizens by providing them electronically, in some cases with an explicit strategy to ensure these services reach women and others who face barriers to access.” Huyer (2005) suggests that the knowledge of women’s rights gained through the Internet and other ICTs can lead to “increased freedom of movement, freedom from physical violence, and political knowledge and awareness.” The report from Uganda supports this belief, indicating that women could use the information they access through the Internet to seek help from domestic violence situations. According to the Nepal report, “the majority of women are still unaware of their basic rights,” which could be remedied by the use of ICTs.

Access to Health Information

In addition, women can greatly benefit from nutrition, reproductive health, and general health information available on the Internet (Gurumurthy, 2004). Many studies on gender and ICTs in developing countries identify obtaining health information on vaccinations for children and preventative measures for epidemics as one of women’s primary information needs, especially in rural areas (Comfort, Goje, & Funmilola, 2003; Conway, 2003a). This notion is supported by the Uganda report, which states that many Ugandan women currently need access to information about preventing HIV and AIDS, and access to the Internet could assist in meeting this need. Also, according to Huyer (2005), access to reproductive health information on the Internet could improve women’s income-earning ability by improving their health and decreasing their number of children.

In addition to the many personal benefits for women using public access computers, several studies cite a range of benefits for society as a whole. Here we turn our attention to the collective

benefits – those shared by a community as a result of women’s use of public access computers. How does the community benefit when women use ICT?

Economic Growth

Considering that women make up approximately half of the population of most communities, improving their access to information and knowledge available on the Internet can ultimately result in greater strides toward the communities’ social and economic development (see the Uganda chapter). In fact, Mbarika et al., (2007) posit that “gender inequality tends to slow economic growth.” The authors quote the International Telecommunications Union: “Neglecting to give women access to [ICTs] not only deprives them and their families of income, but reduces the skill-level of a nation’s human resource, limits national productivity, and bars a country from being competitive in the global market” (2007). Huyer (2005) notes that “women engage in 60-90% of the agricultural production activities in the developing world; they tend to be responsible for the gathering and use of energy for cooking, as well as for water and sanitation needs in their communities.” Thus, Huyer notes, the value of information to women is tremendous and affects not just their lives but also the lives of others in the community. Mbarika et al (2007) write: “women can play an instrumental role in lifting their families out of poverty by participating in the labor force. Women are more likely to invest their earnings in their children, and to assume critical, life-sustaining responsibilities.” Elnaggar’s article, “Towards Gender Equal Access to ICT,” states that ICT can enable women to “participate effectively in numerous development fields, including planning and decision making at the family, institutional, and societal levels” (2008).

Improved Health & Education

In addition to the potential for economic development, several studies have noted other social benefits for communities in which women and men have equal access to computers. Chief among these are improved health and education services within the community. Gurumurthy (2004) writes that ICT devices “can enable health education and information dissemination, bring communities and health facilities closer to each other through regular systemic information exchange, and offer simple solutions for collecting and analyzing information about disease and health-seeking behavior to help health interventions become more locally relevant.” It is important for women in developing countries to have access to such information, not only because they are often the providers of family health care (Huyer, 2005), but also because studies have shown that when women have access to information, they are more likely than their male counterparts to share their knowledge with others, creating a “multiplier effect” (Sengupta, et al., 2007). Abrahamson and Fisher (2007) have proposed a model for this type of information sharing, which they termed “lay information mediary behavior” or LIMB. Lay information mediaries (LIMs) are those who “seek information on behalf or because of others” (Abrahamson & Fisher, 2007). As women often play the important role of lay information mediaries in their families and communities, particularly with regard to health and education issues, it follows that increasing women’s access to information available on the Internet could benefit the community as a whole.

Capacity Building

Additionally, studies indicate that when women in developing countries are given equal access to relevant ICTs and adequate training in using the technologies, they develop the capacity to produce their own information using ICTs in addition to consuming and sharing the knowledge with oth-

ers. For example, Somolu (2007) studied African women’s access to and use of blogs. Her study found that African women were, among other things, blogging about: art, career/education, current affairs/politics, religion/spirituality, fashion, food/health, parenting/pregnancy, relationships, sports, technology, and women’s empowerment issues. According to the study, “When women blog – irrespective of the topic – they are sharing their life experiences and perspectives, documenting and passing on knowledge, reaching out to other women (and men), and giving women a voice” (Somolu, 2007). The issue of capacity building as a benefit of ICT is salient in the literature on gender and ICT; nonetheless, there is little evidence of capacity building benefiting women in the results of our study. A closer look may be needed in each country to assess whether it was missed, or whether it was not there.

Cultural Transformation

Lastly, but perhaps most importantly, women’s use of public access computers in developing countries can contribute to cultural transformation and changing stereotypes about gender and technology. As many women are confined to private spaces in developing countries, their mere presence in public access venues could have the potential to change cultural norms so that it would be more acceptable for women to participate in the public sphere. Furthermore, Conway (2003b) reports that women users of telecenters in Mozambique who have received computer training “no longer feel that computers are for men.” In addition, women’s rights organizations around the world are collating and disseminating material on women’s legal rights, sexual and reproductive rights, and human rights on the Web (Gurumurthy, 2004). As more people in developing countries become exposed to this information, there is a growing potential for social transformation and a realization of gender equality. Islam and Hasan (2009) suggest that the education and awareness within

rural populations that result from women's increased use of telecenters in Bangladesh could reduce "social harassment, particularly of women, like superstition, dowry (property given at marriage), child marriage, polygamy, throwing acid on women, women torture, etc." Additionally, the report from Nepal (see the Nepal chapter for more details) highlights the country's sex trafficking problem, in which girls in rural areas are lured by the prospect of a nice job in a foreign country only to find themselves victims of the sex trade. The report indicates that bringing awareness to sex-trafficking issues to women via the Internet is one step toward combating the issue by enabling them to understand that it exists and what courses of action they can take to protect themselves.

BARRIERS TO REALIZING THE POTENTIAL OF ICT, ESPECIALLY FOR WOMEN

We have seen above that there are tremendous benefits that arise when women use ICT, both individual benefits and wider collective benefits. Despite these potential benefits, there are numerous barriers that prohibit many women in developing countries from using these technologies. Some of the barriers affect both men and women equally, whereas others appear to be more targeted to women. In order to reduce, or eliminate, barriers to ICT use that women face, we must first understand these barriers.

Location, Infrastructure, and Connectivity

Perhaps the most common barrier shared by men and women in developing countries is poor infrastructure, particularly in rural areas. Irregular power supplies and underdeveloped communication systems present significant obstacles for achieving Internet connectivity in some communities (Alumanah, 2005; Bonder, 2002; Comfort, et

al., 2003; Elnaggar, 2008; Islam & Hasan, 2009; Olatokun, 2008; Somolu, 2007). Additionally, the materials, installation, human resources, and training necessary to improve the infrastructure and provide Internet access are costly and overwhelming (Alumanah, 2005; Best & Maier, 2007; Elnaggar, 2008; Gurumurthy, 2004).

Some of the barriers identified in the literature as more significant for women are related to the public access computer venues themselves. As we found in our chapter on public access users, many of these venues are seen as "gendered spaces," in this case meaning that they are perceived as masculine places, unsuitable for women (Kuriyan & Kitner, 2009; Long, 2005). Several reports cite the lack of women support staff and trainers in telecenters and cybercafés as a deterrent for many women, noting that women are more likely to frequent public access venues that are staffed by other women (APC WNSP, 2005; Sengupta, et al., 2007; Sreekumar, 2007). Due to social norms, some women may not feel comfortable using the venues in the presence of men. Reports also indicate that some public access venues are seen as entertainment centers, which men frequent to access pornographic content (Gurumurthy, 2004; Long, 2005), and, in such cases, women may not feel welcome in the centers. Huyer (2005) notes that "where women are present in public access centers..., gendered patterns of behavior and interaction such as harassment, belittlement of women's abilities, and the prevalence of pornography at cybercafés will mitigate against use by women."

We have learned in our chapter on users that there is a strong urban bias of public access venues. The physical location of public access venues is another commonly cited barrier for women. According to Huyer (2005), women make up the majority of the population in rural areas of developing nations, and because infrastructure is often weak or nonexistent in these areas, many public access venues are located in urban areas. In some cases, socio-cultural and religious customs, such as restrictions on travel for women and

girls, make it more difficult for women to reach these venues. These socio-cultural and religious factors are at play in some rural areas of Egypt where “stricter rules apply [to] girls and they are less likely to go out and have many outdoor activities.” In some Muslim and Hindu cultures, it is not socially acceptable for women to venture out in public without a male chaperone, and traveling sometimes poses safety concerns for women. All of these factors pose access barriers to women (Best & Maier, 2007; Elnaggar, 2008; Gurumurthy, 2004; Hambly Odame, 2005; Huyer, 2005; Kuriyan & Kitner, 2009; Olatokun, 2008; Sreberny, 2005).

Time and Money

Time is another commonly cited barrier for women. Best and Maier (2007) write that women’s environment in developing countries...

is almost always primarily domestic, situated within a patriarchal highly traditional society, where women are deemed to be much inferior to men and must simultaneously juggle three roles, that of primary care giver for children and elderly relatives, that of housekeeper (cooking, cleaning, gathering firewood, looking after livestock) and, frequently, that of income-earner for the family, working in the fields, as a domestic servant or selling wares and produce.

With so many demands on their time, there is little time left for women to travel to and use public access centers (APC WNSP, 2005; Elnaggar, 2008; Goulding & Spacey, 2003; Hambly Odame, 2005; Kuriyan & Kitner, 2009; Obayelu & Ogunlade, 2006; Olatokun, 2008; Sengupta, et al., 2007; Somolu, 2007). In Costa Rica, “the absence of day care centers with social visions prevent mothers [from attending ICT] capacity building programs.” Furthermore, some public access centers have operating times that are inconvenient for women (APC WNSP, 2005).

Because of their long workdays, if women have free time, it is generally in the evening or at night, and some facilities are not open during the evening hours. Even if the facilities are open during later hours, it may be culturally unacceptable or unsafe for women to travel to the center after sundown (Sengupta, et al., 2007).

While we discovered in the previous chapter that, overall, fees do not present a significant barrier to ICT use to the majority of the population, the cost of using the facilities is another concern for many women, especially considering that more women than men are living in poverty (APC WNSP, 2005; Gillard, et al., 2008; Goulding & Spacey, 2003; Gurumurthy, 2004; Hambly Odame, 2005; Obayelu & Ogunlade, 2006; Schreiner, 1999; Sengupta, et al., 2007; Skalli, 2006; Somolu, 2007; Wheeler, 2007). Gillard et al., (2008) state that “within poor households, women are the poorest of the poor.” Gurumurthy (2004) suggests that women, in general, have less economic power than men, and that, particularly in developing countries, “men hold the majority of high-skilled, high value-added jobs, whereas women are concentrated in the low-skilled, lower value-added jobs.” According to Obayelu and Ogunlade (2006), Nigerian women experience poverty in myriad ways, including:

Economically through deprivation; politically through marginalization in terms of their...denial of the rights to land ownership (inheritance) and access to credit facilities and other inputs; socially through discrimination in terms of their participation in decision-making at home and in the community; culturally through ruthlessness; and ecologically through vulnerability.

For these women, and others in similar situations, their poverty is due to complex systemic socio-cultural and political problems that are not easily overcome.

Lack of Relevant Content

Several studies point to the lack of relevant content for women in developing nations as a primary barrier to their use of public access computers, including the Brazil and Sri Lanka reports. In order for women to use the technologies available at public access centers, “the technologies must have a direct link to [their] basic needs and daily activities” (Conway, 2003a), and it is widely believed that the viewpoints, concerns, interests, and needs of women from the developing world are not adequately represented on the Web, or in computer hardware or software applications (APC WNSP, 2005; Best & Maier, 2007; Gurumurthy, 2004; Huyer, 2005; Olatokun, 2008; Skalli, 2006; Sreberny, 2005). The fact that these applications are most often designed by white Western men is seen as the root cause of this issue (APC WNSP, 2005; Olatokun, 2008), which points to the underlying need “for women to systematize and develop their own knowledge and perspectives in order for them to be genuinely present in these spaces” (APC WNSP, 2005).

Additionally, the English language dominates the Internet and computer applications, which further limits access (APC WNSP, 2005; Comfort, et al., 2003; Elnaggar, 2008; Gurumurthy, 2004; Huyer, 2005; Islam & Hasan, 2009; Olatokun, 2008; Skalli, 2006; Sreberny, 2005). The English factor is also reflected in the Peru and Algeria reports, which indicate that the language barrier is a common problem for users of public access venues.

Low Education and Literacy Levels

Studies have shown that in the developing world women receive less education than men and suffer from lower literacy levels, which greatly inhibits their use of computers (APC WNSP, 2005; Best & Maier, 2007; Bonder, 2002; Comfort, et al., 2003; Gurumurthy, 2006; Hambly Odame, 2005; Huyer, 2005; Islam & Hasan, 2009; Obayelu

& Ogunlade, 2006; Olatokun, 2008; Schreiner, 1999; Somolu, 2007; Sreberny, 2005; Sreekumar, 2007). In fact, “women make up nearly two-thirds of the world’s illiterate, and one out of every two women in developing countries is illiterate” (Vodanovich, Urquhart, & Shakir, 2010). Low education and literacy levels were identified as barriers for women’s access in the Peru, Turkey, and Uganda reports. Furthermore, girls and women in developing communities often receive poor ICT training, or sometimes none at all (Elnaggar, 2008). Sengupta et al., (2007) note that technology is seen as “requiring skills that women do not have or are not given a chance to develop.”

Social Norms and Perceptions

The perceptions about gender and technology in many developing nations are identified as an additional barrier to women’s access to technology. Studies report that due to socio-cultural norms, gender discrimination, and lack of training, many women lack the confidence they need to learn new technologies, and they frequently have lower expectations of themselves (Applegate, 2008; Moreno Minguez, 2005; Obayelu & Ogunlade, 2006). Moreno Minguez (2005) states:

Men are more likely than women to think they have the skills to use scientific/technological tools and equipment. This likely reflects qualifications, training and work experience. It also signals the well-known finding that women lack confidence in their capacities for science and technology, which not only leads them to avoid such fields but also not to recognize the scientific/technological skills they actually possess.

Computing is commonly perceived as a male activity (French, 2005; Gurumurthy, 2004; Hambly Odame, 2005; Huyer, 2005; Obayelu & Ogunlade, 2006; Sengupta, et al., 2007; Skalli, 2006; Somolu, 2007). In conservative areas of Algeria, according to the Landscape Study re-

port, it is considered shameful for a woman to go to a cybercafé and “many families forbid their daughters to go to cybercafés because they think that this will reduce their chance to be married.”

Transgender Communities and Public Access

A small but important factor was found in one of the countries in this study, opening an entirely new area of inquiry. In our research of gender and public access computers, we found no literature on transgender individuals’ access to and use of computers in developing countries; all of the literature we reviewed is focused on comparing women’s access to men’s. And yet, the Nepal Study report identifies the transgender community as a relatively significant minority population in the country. The report states that although women hold a lower social status than men, transgender individuals are even more marginalized and are referred to as “untouchables.” The author reports that there is no mechanism in place to monitor the transgender community’s use of libraries, telecenters, or cybercafés in Nepal, but it is believed that these individuals are virtually excluded from all public access venues. While the report does not cover the information needs of the transgender community in depth, it does note that the community could benefit from accessing information available on the Internet about their civil rights and hormone treatments. We suggest that, like women, transgendered individuals may also benefit from online networking opportunities that reduce isolation, connect them with others in the transgender community, increase their access to global and local markets to improve their earning potential, increase their access to health information, and provide means to share their stories safely and anonymously. Clearly, more research is necessary to identify the information needs of these individuals and their barriers to using public access computers. We also suggest that further research be done to measure the prevalence of

transgender communities in other developing nations, and appropriate policies be formulated and enacted to ensure that the transgender community has equal access to information and technology.

MOVING FORWARD: RECOMMENDATIONS

Given the complex barriers to women’s use of public access computers in developing countries, it is clear that a multi-faceted approach for gender equity is vital. Based on our literature review and data provided in the Landscape Study, we suggest that ICT for development policies include the following three components:

1. Provide ICT training for girls and women

The literature makes it abundantly clear that ICT education should be required in primary and secondary school curricula, with an emphasis on gender equality. If girls are taught and encouraged to use computers at a young age, they will gain confidence in using the technology. Boys and girls alike will be less likely to view computing as a male activity, and traditional gender stereotypes associated with technology will be transformed.

Providing ICT training for girls and women must also be a priority for public access venues. Telecenters, cybercafés, libraries, and other venues that have fewer women users must make a concerted effort to recruit and train women staff, who can, in turn, recruit and train women users. These venues can also offer “women only” hours, thereby providing a safe space for women to use public access computers without having to experience harassment from male users.

2. Establish partnerships to raise awareness of ICT benefits for women

In order for governments to prioritize offering ICT education in schools, government officials

will need to understand the potential benefits of the technology and how it can contribute to development. Likewise, in order for women to carve time out of their busy schedules to attend computer trainings at public access venues, they must see how computing can benefit themselves and their families.

Thus, women's development and educational centers should provide role models for girls and publicize the benefits of ICT use for girls and women. Also, these centers should work with public access venues to establish partnerships with government, businesses, and international organizations to implement ICT policies and programs that contribute to gender equality. Such alliances will help spread the word on the importance of ICT use by women and provide opportunities to strategize ways to improve infrastructure and reduce connectivity costs and service fees.

3. Produce content relevant to women users

As awareness is raised on the importance of ICT use by women in developing countries, the IT industry must focus its efforts on developing tools to break down language barriers to information access. The majority of women in developing countries do not understand the languages that dominate the Web. IT professionals can develop multilingual tools, interfaces for non-Latin alphabets, and graphic interfaces for illiterate women. Producing content in local languages is essential if ICTs are to meet the needs of women in the developing world.

Once trained in computing, women users, like the African women bloggers in Obayelu & Ogunlade's article (2006), can produce their own content that is meaningful and relevant to other women in their communities. Furthermore, through training, women can become empowered with the tools and skills they need to enter the IT field, where they can develop software and hardware applications more suitable to women users in their communities.

In this chapter, we took a gender perspective to analyze the personal and collective benefits of women's use of public access computers in developing countries, as well as the barriers that prevent women's use of the technology. We noted how these benefits and barriers are both manifested in the Public Access Landscape Study and well-documented in specialized literature on gender and ICT. In light of these findings, we present three key recommendations to increase women's access to and use of public access computers: 1) *provide ICT training specifically addressed to girls and women*, 2) *establish partnerships to raise awareness of ICT benefits for women*, and 3) *produce content relevant to women users*. Now that we have explored some key success factors for increasing benefits to women, and reducing or eliminating barriers women face when using ICT, let us expand on these recommendations in the following chapter by offering the five key success factors for all public access venues, regardless of gender, which can be taken as recommendations for public access venues to thrive.

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ENDNOTES

- ¹ An earlier version of this paper was presented at Hawaii International Conference on System Sciences, January 2011, ©2011 IEEE, HICSS-44
- ² The APC has a long record of analyzing ICT in a development context from a gender perspective. The often-cited *Gender Evaluation Methodology for Internet and ICTs: A learning tool for change and empowerment*, also referred to as GEM (APC WNSP, 2005), offers a comprehensive review of the evolution of feminist perspectives and theories on gender and technology. Over time, feminists have moved away from viewing technology in terms of male activities to a greater emphasis on women's activities.
- ³ The detailed country reports are available online at <http://tascha.uw.edu/research/landscape-study/>, and they are referred to by country name in this chapter to simplify the reading.

Chapter 7

Challenges for Libraries in the Information Age

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ABSTRACT

Libraries play a central role as venues that offer public access to information. Increasingly, libraries in developing countries are offering access to computers and the Internet, as well as to books and other types of information services and resources. Given the relatively scant literature on public access to ICT in libraries in many countries, we explore in this chapter the specific challenges libraries face in the countries we studied in the Landscape Study. How are public libraries serving the information needs of marginalized communities in developing countries? How is access to new information and communication technologies (ICT) changing the landscape of public access to information? How can libraries better collaborate with other types of venues (such as telecenters and cybercafés) that offer public access to computers and the Internet? These are some of the questions that we seek to answer in this chapter.

INTRODUCTION

Libraries play a central role in offering public access to information. Increasingly, libraries in developing countries are providing access to computers and the Internet, as well as to books and other types of information services and resources. Due to limited literature on public access to ICT in libraries in many countries, in this chapter we

explore particular challenges face by libraries in the countries we studied. In this chapter, we look at the following questions: How are public libraries serving the information needs of marginalized communities in developing countries? How is access to new information and communication technologies (ICT) changing the landscape of public access to information? How can libraries more effectively collaborate with other types of

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venues (such as telecenters and cybercafés) that offer public access to computers and the Internet?

There are many factors that contribute to the social appropriation of information (the ability to utilize information in ways that can help improve a person's position in society) and how it might be used to improve one's quality of life. How information is used, and how it helps to improve one's life, must be seen through the perspective of the user. Services, resources, and affordability are important but small parts of the picture. Capacity must also be considered, which refers to the level at which the staff and users can utilize the resources, and whether this is meeting the user's information needs. This approach incorporates how the user perceives the information or ICT environment, its utilization, and applicability.

A great number of resources and time have been invested in ICT in developing countries. The past ten years have provided success stories in terms of economic data, such as GDP, growth and reforms in the telecommunications sector, network and broadband connections, telephone subscribers, and productivity (World Bank, 2008), but questions remain about the attribution of this success to ICTs. Looking solely at economic figures ignores important social implications that are much more difficult to measure.

David Tyckoson (Director of public services at California State University in Fresno) proposes a way to look at how libraries can converge with user needs in order to improve the perception of libraries (2008). Library users desire three things from their information venues: information, entertainment, and socialization. Access to information is the traditional use of a library, while libraries providing entertainment and socialization opportunities are relatively new phenomena. ICTs provide important tools for satisfying these needs. Socializing might include book clubs, or access to Facebook or Internet gaming sites. Entertainment might include media centers, scrapbooking, or simple computer usage. How do libraries accommodate these needs? As we found in our

research, public libraries around the world are struggling with traditional notions of library services that regard entertainment and socializing as inappropriate behaviors for users. We also found that the majority of users of public access venues are looking for precisely these kinds of services, which presents a double challenge to libraries in developing countries: How they can include non-traditional library roles while embracing new opportunities that ICTs have to offer.

This chapter presents aggregated data across all countries, giving special attention to commonalities among them. We discuss three key challenges facing libraries as they revisit their public service mandate and embrace the information age. These challenges are interrelated. We describe them one by one and conclude with a set of recommendations to help libraries capitalize on the new opportunities presented to them:

- **Perceptions matter:** The perceptions of users and governments shape the actual uses of library services
- **Users matter:** This study helps inform a more accurate understanding of who libraries actually serve
- **Power and money matter:** Government prioritization in the allocation of resources makes a difference in the success of libraries as public information venues

All three factors are intertwined. Library services are often tied to user perceptions, such as who uses the library and why, and whether the government allocates resources for library services. Government prioritization and resource allocation often correlates with how libraries are perceived by the public, as well as by the government, and who the library has historically served. In addition to the country chapters included in this volume, we draw from the detailed country reports that are publicly available at <http://tascha.uw.edu/research/landscape-study/>. In this chapter, we refer to the reports by country name for clarity's sake.

PERCEPTIONS MATTER

The goal of libraries is to help users to access information – not just information itself, but the processes involved in finding the needed information. Libraries may be viewed currently as places to study or store books (as we found in many countries), but this image may need to evolve with the information needs and the perceptions of the population. In order to serve its constituents, libraries need to step beyond catering mostly to scholarly usage and step towards helping everyone who needs access to information, whether users know what they are looking for or not. Incorporating technology into this change is an essential part of the vision, expanding the purpose of libraries and how they suit the needs of their users. A building containing books serves a limited public purpose if it serves only a select few, has little equipment, lacks resources and content suitable for the local environment, is too expensive for poorer segments of the population to use, and is not adapting to the everyday needs of the community it aims to serve.

As more people become literate, both in the book sense and the digital sense, libraries are no longer simply a place for learning in a traditional sense. The introduction of ICTs has significantly increased the demand for faster, easier ways to answer information needs, and produced new means for people to utilize technology to create original and innovative content. The case of Turkey illustrates this issue: “The content available are not so limited but the content used are mostly related to research. Therefore, students are the best matches for such venues. Changing the image of these venues from being part of a classical view of the library to ICT information access centers can help in two ways: one, building a new user base and second, relevant content that are used in these venues.”

How users perceive a library and its usage has a great effect on whether and how it is used. Perceptions of library safety and trustworthiness

can greatly affect who feels comfortable in a library. Cultural norms influence this perception by adding gender, age, socio-economic, religious, ethnic, and racial factors. Actual discrimination may be unrelated to feelings of discrimination. Included in the perception of a library is whether it is viewed as an acceptable or even a “cool” place to go, and whether it responds to users’ needs, such as providing current information.

Our study shows that libraries are almost universally perceived as trustworthy and safe (both in terms of their content and physical space), but what often discourages users is lack of current content and a belief that libraries are for students and the academic community, as discussed below.

When other options are present, such as telecenters or cybercafés, they are preferred for information access because updated information is available (shown in the Dominican Republic and Peru), generally through ICTs. Community centers are also important information access venues because they are built to respond to local user demands.

Another perception that discourages usage is the fear of ICTs from people who have not been exposed to them. An example is presented from the Honduras Public Libraries: “If we speak about services in general, the access is less limited, but if we talk about libraries that have ICT services, the use is more restricted in adults, because of perceptions and fears of the technology. In this matter, those who possess more capacities are the children and young people. The restrictions are perceived by the adults as personal barriers, but if the adult population does not learn with the technologies, they will not develop suitable capacities.”

USERS MATTER

Do libraries around the world serve the needs of all people — men and women, those with disabilities, various age groups, urban and rural

populations, the highly educated and the illiterate, people from impoverished areas, users unfamiliar with technology, people from diverse ethnic and religious backgrounds, users who don't speak the dominant language, and users whose needs differ from those of the majority of the population? This is a question that must be accurately answered if improving public access to information is a policy goal, particularly if underserved communities are to have opportunities to gain access to information to help improve their lives. A typical response from many countries was exemplified by the following quote from our Uganda research team: "The illiterates had no idea how libraries could improve their lives through access to information[,], hence, they thought libraries were 'only for elites' and were irrelevant to them."

Several countries have created community libraries in areas that are underserved, or not served at all, by public libraries. These libraries are not government supported, but predominantly community run (such as in Argentina, Bangladesh, Nepal, and Uganda). This practice allows access to information in non-urban communities where it can be hard to reach public libraries, where library hours are too restrictive, or where the public libraries are simply not serving the public needs. Community input is essential in order to serve user needs and effectively utilize public spaces for access to information, as shown above regarding community libraries in Nepal.

Non-urban localities frequently possess fewer services than urban communities. This circumstance is correlated to a lack of government prioritization and resources, a dearth of infrastructure, and a shortage of demand and appreciation for what libraries can provide. Unfortunately, this often means that less affluent communities are not served as well.

Responding to user needs can be an important element in helping local populations utilize information services. As part of the State Reduction of Information Inequity Program in Kazakhstan, the government aims to provide free access to

future e-government services, particularly in rural areas. Public access sites are being installed in every major post office and in many telecom offices and mayors' offices, as well as in some provincial libraries, airports, larger supermarkets, and other public venues. Priority has been given to areas where the public gathers to help integrate information access with everyday activities.

Public libraries can also provide essential sites for student access to textbooks and a quiet place to study. According to the country report from Sri Lanka, "Provision of reading and study rooms help especially those whose housing conditions are substandard."

Finally, success in providing services to underserved communities is greatly influenced by staff training, especially in the use of ICTs. According to The Library Association (2002):

The skills and motivation of staff are crucial if quality services are to be provided to marginalised groups and communities. This must include consideration of how representative library staff are of the population make-up of their area. It must also include an acceptance that marginalised groups and communities are as entitled to a professional level [of] service as more articulate and engaged sections of the community. Specific knowledge and skills may be required to meet the needs of some groups who are socially excluded and each public library service will have to develop appropriate training strategies to meet those needs.

A lack of training impedes staff capacity to serve the users in the best possible way (as discussed by our Nepal researchers), and the need for increased training for both users and operators emerges as a dominant factor in inhibiting the use of ICT in some libraries. Mongolia demonstrates a typical response from our research partners when discussing digital capacities of library staff, which affects library ICT usage: "Library staff often lack the technical skills required to properly assist users in utilizing technology-based services, or to

maintain the equipment. The need for increased training for both users and operators emerged as a dominant factor in inhibiting the use of ICT in libraries.”

The Riecken foundation, which operates in Honduras and Guatemala, approaches the issues of training and capacity building from a different perspective. These sixty privately funded libraries began as democratically run community centers, framed within the institution of libraries. Their primary goal is to provide centers for local involvement. Their hallmark is community involvement in both the set-up and sustainability of the venues. Because the communities are involved, and locals are on the board of directors, they ensure the libraries cater to local needs, and are invested in the libraries’ sustainability. Library board members develop mission statements, hold elections, and establish library policies. The libraries function as places for people to gather, as well as for providing information, entertainment, and socialization opportunities – one could say these are perhaps the 21st century vision of a library.

RESOURCES MATTER

The level of political will and public support for the public library system in Moldova is unsatisfactory and inadequate to its needs. This fact has had a very negative impact on public libraries. On the other hand the inadequate political will for public libraries is dictated by the poor socio-economic situation in the country. Main government objectives are: to improve the social-economic situation, reduce poverty, etc. It seems that authorities don’t perceive that public libraries also can contribute to realization of these objectives by offering public access to information, which in turn offers concrete solutions for solving community problems. (Moldova country report)

Without the support of the local and national governments, building and sustaining strong public libraries is not feasible. According to our Philippines research team: “Since every local government unit has its own priorities, support for the public library is also variable. There are local government units that fully embrace providing ICT services to [their] users, and there are some that prioritize paving roads over equipping the libraries with personal computers and internet connection[s].” In Costa Rica, researchers point to corruption, as well as institutional bureaucracy, for delays in payments to employees – all to the detriment of library users.

Aside from change in governments, what can be done to make public libraries a priority in terms of regulation and resource allocation? This question takes us back to community requirements and government responses to those needs and demands. If the services being offered by public libraries are not what users need, then, not surprisingly, users will ignore these offerings. At the same time, if governments do not prioritize discovering user needs, how can service offerings support these needs? In developing countries, there is always the argument that when people are starving, information needs cannot be prioritized, but this short sightedness fails to grasp the fundamental relationship between information and issues related to poverty, as seen in the quote above from the Moldova Public Libraries.

Perhaps the most pressing resource-related priority that needs to be addressed in global public libraries is the production of local content in local languages (Ballantyne, 2002; Bridges.org, 2009). Many underserved communities have the facilities to access information but no useful information to access. Several of our country research teams mentioned the lack of available content in local languages for all types of library materials. This lack of content in local languages is particularly relevant to technology, as the Internet (and the majority of digital content) is primarily an English-language medium. Literacy also affects people’s

access. Without specific accommodations for illiterate people, the content becomes inappropriate. Georgia exemplifies the state of information availability in the former Soviet republics: "Public libraries suffer from lack of book supply, but they also face the problem of overloading by irrelevant content, like books of outdated political character of [the] Soviet epoch, [and] books with scientifically outdated information."

Further evidence of need for government support is shown in the demand for ICTs. It was voiced in several countries that the number of ICTs available is not sufficient to meet user demand. This technology-resource deficiency affects library usage. Our Egypt research team reported that "These [i.e., technology] services have become the major attractions to these venues, in contrast to traditional access to books." In Moldova, computer services considerably increased the number of users in libraries, and staff mentioned that "access to the Internet provides new opportunities for users."

Similar to the Riecken Foundation's approach to library capacity building in Honduras and Guatemala, involving the community in decision making about what services are needed is essential to providing information services to all communities and populations. There are several flourishing examples in our study of community-driven organizations that serve underserved populations. The common element in all such institutions is their ability to determine what is needed in the community, and to incorporate the local population into the implementation of these projects.

Argentina provides a fine example of how community libraries can help bring people into libraries. The country combines both government-supported public libraries and community-supported "popular libraries." The strength of popular libraries is shown through local participation that responds to community needs, recognizes access barriers, and involves stakeholders. In terms of ICTs, Argentina's government support, along with the community involvement, together provide the added support needed to finance and sustain

technology that is not available in many developing countries due to low prioritization of libraries.

Uganda's community libraries differ from public libraries in that they are created by and for a local population, and usually are not supported with government funds. The needs of the local community are the primary target, and the library collection and services represent those needs. In addition, the librarian lives in the community and can identify and provide for those needs in a way that is best suited to the users. Serving mainly rural communities in Uganda, where agriculture is the primary activity, community libraries collect agricultural literature from NAADS (National Agricultural Advisory Services) and other partners with existing community based organizations and nongovernmental organizations on how to develop local content that suits the communities.

In developing countries, the use of digital cameras, mobile phones, flash disks, printers, photocopiers, computers for typing, the Internet, and other digital services cuts across almost all sectors of the population. Many individuals in these countries have access to, and know how to use, ICT-related tools, and there is a trend toward these people integrating information services in public access venues into their daily lives.

This widespread use of technology is what we mean by "public access" – where everyone is welcome to participate and feel a part of the process; it's where community building occurs. Does this type of public access manifest in the "traditional" library in many developing countries? We have seen much evidence to the contrary. So, if public access is the goal, then the traditional library must change to accommodate its users and the community.

Information policymakers need to review successes and failures in serving local needs. If telecenters and cybercafés are more popular than libraries, then libraries are not satisfying public information needs, and thus it might be appropriate to re-evaluate the purpose of a library, and how public finances are being utilized. Rather than

abandoning libraries as institutions, policymakers must upgrade and revise the library's function, usage, and services. This change must be based on user and staff capacities and training, physical usage of spaces, infrastructure, and so on. But most importantly, if the goal is to provide public access to all, government agencies need to: 1) prioritize libraries as a space where people go to satisfy their information needs, 2) understand user needs, and 3) recognize how funds would be put to best use in order to service all populations.

CONCLUSION AND RECOMMENDATIONS

Probably libraries are the venues which are [most] grossly underutilized in the country. As a public access venue they have acceptability within the community. However, due to inappropriate resources and integration of ICT they are not utilized fully by the users. Integration of ICTs both at the back and front end would enhance [their] potential and more young people [could] turn their attention to these venues. Community libraries are [a] good example for this. (Bangladesh country report)

We have discussed people's perceptions of libraries, and how meeting users' needs and adequate resource allocation help strengthen the mission of public libraries. This information is based on findings from a global study of public access venues in 25 countries around the world.

Most public libraries are supported by local or national governments that often do not have the financial capacity to provide ICTs to meet popular demand. In many developing countries, particularly in rural areas, this lack of financial support means much of the population has little or no exposure to ICTs and is not aware of their usefulness. By combining the resources of private supporters and/or charging minimal amounts for ICT usage, there is potential for ICT sustainability,

but this cannot be implemented without the support of national and local governments. Supporting libraries, which includes financial support, as well as prioritization, should be considered part of a government's social obligation to its citizens.

For users to be able to incorporate ICT usage into daily routines, access needs to be convenient in terms of hours, location, transportation, and comfort level within the venue. Often, community involvement can provide the incentive and support to bring venues closer to home and provide motivation to keep the venue running. This type of community involvement is in contrast to government-run libraries that often lack input and involvement from the local community, which was true for a majority of the public libraries in our study.

Involving local communities is central to the success of the library mission. It may entail a re-imaging of libraries as places where both individuals and communities develop skills and confidence, as well as where they can improve social networking. This new vision could involve developing libraries as community resource centers, as well as providing access to communication, information, and socialization. In addition, forward-thinking libraries might share facilities and services provided by other local agencies, and form partnerships with other organizations with similar goals. In conclusion, libraries need to adapt to changing times. What good is a library if no one sees it as a place to meet his or her information needs? Our study shows that libraries are trusted institutions that represent a place to go for information, but content, services, adaptation, accommodation, and sustainability all go hand in hand to make a library *the* place to go, not just *a* place to go for information.

Stated simply by our Peruvian researchers: "If libraries have updated content, students go frequently, especially if there are not other information sources in their community (such as cybercafés). If libraries have a collection com-

pletely outdated, they are empty; this situation is unfortunately very common.”

In order for libraries to adapt to the twenty-first century, draw in users, and incorporate ICTs, this paper argues the need for three clear strategies: 1) implement reforms to change people’s perceptions about libraries that make them interesting, relevant, and “cool” places to go, 2) find out what users want and need, including the growing interest in use of computers and ICT, and incorporate these needs into the content and activities of each library, and 3) influence government resource allocations to prioritize and fund public libraries to serve the needs of all populations. Other key tasks include strengthening user and librarian capacities to use ICTs as part of service offerings to help meet the needs of everyone in the community. This strengthening and capacity building can be facilitated by effectively coordinating efforts between public and private institutions, and between libraries and other public access venues in the community, in order to create sustainable environments that service user needs.

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ENDNOTE

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Chapter 8

How do Public Access Venues Meet Information Needs in Underserved Communities?

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ABSTRACT

User information needs vary by geographic location as well as by economic and social standing, among other factors. These factors drive the format, content, currency, and language in which information is produced and presented. Information needs of users of ICT in public access venues are satisfied in a variety of manners. The question arises as to how public access venues determine information needs in a community, and how best to satisfy those needs. There is no lack of information. What needs to be established is where do people presently get information, and if ICT can help to service their needs in a better way. In this chapter, we consider what types of information users need, and what they seek when they go to public access venues to use ICT.

INTRODUCTION

Information needs vary by geographic location as well as by economic and social standing, among other factors. These issues drive the format, content, currency, and language in which information is produced and presented. Information requirements of ICT users in public access venues are

satisfied in a variety of manners. How do public access venues determine information needs in a community, and how are those needs satisfied? There is no lack of information: what needs to be established is where people presently get information, and if ICT can help to service their needs in a better way. In this chapter, we consider what types of information users need, and what they seek when they go to public access venues to use ICT.

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The Landscape Study revealed three key factors that are important to consider when evaluating how user information needs can best be served. Most of the countries studied emphasized that user needs vary according to social, religious, gender, cultural, economic, educational, and geographic variables. (In addition to the country chapters in this volume, detailed country reports are publicly available online at <http://tascha.uw.edu/research/landscape-study/>; in this chapter, we refer to them by country name.)

One cannot generalize that all people within a particular environment require the same things, or that community and individual needs are the same, although there are recurring themes. We describe these themes below, with a primary focus directed towards content, followed by a discussion of user and operator capacity, concluding with a set of recommendations to help information venues develop and provide information that serves its users:

1. Production of locally relevant content is essential for serving individual and community information needs, which includes up-to-date information.
2. Information produced in local languages makes an enormous difference for access to underserved populations. It is also necessary to consider literacy levels, and to create content for illiterate users.
3. ICT user capacity must be developed in order to provide underserved populations with access to ICT-driven information; ICT training for and by venue operators is also imperative.

PRODUCTION OF LOCALLY RELEVANT CONTENT

Content must be applicable to the users. As our Peru report states, “Each group or specific community would benefit from better public access

to information, but such information should be appropriate, it means that it should be relevant, opportune, understandable, and usable.” Information venues such as libraries, telecenters, and cybercafés may provide access to information, but information must be geared towards the targeted audience. If indeed the goal is to provide information to underserved communities, then providers would do well to determine what type of information is needed, and supply that information in a manner that is accessible and approachable for all users.

Different cultures, regions, and sub-regions require variable content, as needs are based upon the users’ educational status, their vocational and entertainment requirements, cultural, sexual, and religious constraints or conditions, and technological and economic restraints. The political environment in which information is presented will also influence content, format, and access to certain types of information.

Several of countries that we studied (Sri Lanka, Honduras, Indonesia, Nepal, and Uganda) are primarily agriculturally based economies. In these environments, user-information needs focus on weather conditions, market prices, government support, improved production, etc. Other areas, where there are high emigration rates (Dominican Republic, Ecuador, Honduras), users require information about obtaining visas, passports, immigration requirements, etc. These particular needs also affect the information and communication needs of friends and relatives who are emigrating or who have emigrated. Those who are “left behind” are motivated to learn how to use ICTs in order to stay in touch with their loved ones.

Not surprisingly, mobile phones have begun to fill holes in user information needs. Many examples (Bangladesh, Indonesia, Mongolia, Namibia, the Philippines, South Africa, and Turkey) were presented in which mobiles were used to obtain government data, account services, food and health information, and stock data, and of course they provide opportunities for long-

distance communication. Mobiles can be essential for user access to information in rural areas where access to computers and information centers is much more problematic due to distances and lack of availability.

Other examples of locally relevant content to serve users look at the educational needs of students who are unable to attend school daily. In Mongolia, students are leaving school to help families with herding, making standard school inaccessible. Another population that lacks access to relevant information in Mongolia is miners: “The lack of infrastructure coupled with a lack of awareness about the possibilities and potential of digital ICT services in informal settlements such as those created by small-scale miners means that many of the miners and their families may find themselves unable to access information that impacts on their lives as citizens, and further isolates an already stigmatized population.”

In addition to accommodating user needs, user capacities must be considered. In most of the countries that we studied, particularly in rural areas, the use of ICTs has not penetrated, either due to lack of infrastructure or a lack of user awareness. A majority of the countries still use a combination of traditional information sources, as well as new ICT and non-ICT channels. Informal channels (social networks), such as face-to-face communication, are still dominant in many parts of the world, as are television, radio, and newspapers. Much of this outcome can be attributed to the fact that many portions of the population have no idea what ICTs are, how they function, or how they can be applicable to themselves or their daily lives. A quote from the Egypt report: “... the high illiteracy rate and the limited awareness of the importance of digital ICT have contributed to the slow pace of technology penetration, especially in under privileged areas.” This lack of penetration makes capacity building a bigger issue because the awareness of, access to, and infrastructure to support ICTs must come first.

Creation of Current, Updated Information in Local Languages

One of the most commonly mentioned barriers to information access, particularly in libraries, is the absence of current information. Many users are dependent on up-to-date information in order to be efficient in their occupations. Farmers can be helped by knowing the latest market prices, or advanced agricultural techniques that may facilitate productivity, or climatic variations that affect crop production, etc. Similarly, fishermen are dependent upon weather predictions, fuel costs, and supply and demand. Each vocation has its own needs, and current information helps almost everyone in their decision-making.

As mentioned in several of our reports, users often prioritize the venue by whether or not they perceive current information as available. Libraries are often viewed as places to get information, but users commonly opt to frequent cybercafés or telecenters instead, where current information is available through ICTs that are not as well supported in libraries (see chapter on libraries, in this volume for more details on this topic). Obviously, it is easier to provide up-to-date information with ICTs than in static-information conditions. A quote from Mongolia illustrates this phenomenon: “Because of the KBIC (library), I can get information whenever I want it. Before, if I missed the news on the TV, that information was lost to me. Now this has changed.”

The production of locally relevant content is illustrated in a variety of AIDS/HIV community centers in South Africa. These centers provide a dynamic interaction between the community and the centers, which respond to the community needs. The centers are typically set up in locations accessible to the target communities: near orphans and vulnerable children (OVCs) or people affected with HIV/AIDS. The needs orientation of the services offered at the centers means that there is a high relevance to their offerings, including counseling, life skills, clinic services, education (such as homework support), and general OVC

care. All the centers are within walking distance of most of their intended beneficiaries, while outreach programs into homes, clinics, and schools mean that beneficiaries are able to integrate the services into their daily routines. No fees are charged at the centers for accessing public information, including through ICTs. LoveLife is one of the life training programs that operates within these community centers. LoveLife provides public information on health and life skills via messaging on billboards, radio programming, magazine inserts, online content, and trainees who go out into the community to talk about HIV/AIDS and the life challenges facing young people. Media messaging is aimed at the country's youth and seeks to change behavior by empowering and raising awareness. LoveLife has integrated various life-skills issues into its computer literacy curriculum.

Providing information to underserved communities requires determining what type of information is needed, as well as how to supply that information in a format and language that users can understand. In many countries that we studied, not only was content provided in the dominant language, with little provision for indigenous or local languages (which may even be oral), but it was repeatedly noted that Internet content is predominantly produced in English, or in other locally dominant languages, like Spanish in Peru, or Russian in Georgia and Moldova (other countries that produced content largely in the dominant language included Algeria, Bangladesh, Dominican Republic, Georgia, Namibia, Nepal, the Philippines, Uganda). A typical example of this situation comes from Kazakhstan: "English and Russian are the major ICT languages in Kazakhstan and the forecasts are that the prevalence of Russian will be increasing. Therefore access to ICT is limited for the population not proficient in these two languages. The Kazakh language is developed at household level. Technical, literary and other segments of Kazakh are developing too quickly. The majority of the population cannot keep up with this pace, and poorly understands

the 'new' Kazakh. This means that the language cannot effectively be used in everyday life."

Clearly, each region is variable in its language needs, as are the languages spoken within those regions.

Ideally, information needs to push beyond production of content created in local languages towards production of content directly generated by users, for users. User-produced material provides incentive for local-language production, as well as opportunities for "less connected" individuals to learn the tools, and, as they become proficient, to even use technology in creative new ways. In turn, those users in need of local information in local languages are serviced. This way of engaging less-connected users raises the need for infomediaries, sometimes referred to as information brokers. Infomediaries are members of a community who are actively involved in information venues and directly feed information back into their community (see Chapter Three on infomediaries), providing information in general, as well as being a liaison for local information.

The quality of the information produced by and for users depends on the community's capacity to communicate and understand infomediaries. In South Africa, "Due to the high cost of Internet access or bandwidth, lack of a pervasive broadband infrastructure and the low level of awareness generally, online information drives do not reach their intended communities effectively. In many cases, information intermediaries are necessary to download the information and explain it to beneficiaries (government-driven, multipurpose community centers recognize this gap although the skills levels of staff to provide this service are often lacking)."

Unfortunately, the production of local content and servicing local users is not a high priority for government entities in many countries (Algeria, Bangladesh, Colombia, Costa Rica, Ecuador, Mongolia), particularly for excluded groups.

Illiterate users have much to gain through infomediaries, although not all communities are

lucky enough to have someone who can cross the information divide to provide content for underserved communities, including those who are less educated and/or illiterate. In this case, it is important to provide subject matter in digital format that is accessible to users who do not speak the dominant language or who are not conversant in technological applications. As seen in Nepal, “the major factors hindering access to ICT services in the rural areas, apart from the inadequate rural telecommunication and electricity infrastructure, are widespread illiteracy and the ‘under poverty-line’ population. Also, the ICT awareness is really low in the country, more so over in the rural areas. In many rural parts, people even do not know what a computer looks like.”

Brazil has a program entitled InfoBahia, a portal for services offered by the state of Bahia, which utilizes icons to display content. “Researchers believe Brazil must work to improve the functional literacy rate while also delivering information in more visual ways (i.e., less text-heavy), by taking advantage of ICT services.”

Improving User and Operator Capacity

A recurring theme in many of our reports was a lack of user and operator training in the usage of ICTs. Across all venues, users of ICTs were expected to have a certain level of digital literacy in order to utilize the equipment. Operators or librarians were infrequently trained or able to provide instructional opportunities to their users.

According to the country reports, a majority of the users of ICTs in public access venues are youth (aged 15 to 35). This group often gets some ICT training in school, which benefits youth and populations that can afford education and/or supplementary educational services, such as computer training. There is a clear connection between education levels and users of ICT venues; in our study, a majority of the users were high school or university educated. There is also

a pattern of users from medium- and low-income brackets, with very few upper-income users, which may be attributed to the latter category having access at the office or in the home. Furthermore, this digital literacy tends to favor youth who are often bigger risk takers in terms of learning new technology. Older users often fear new information technology but can be encouraged to adapt, given proper circumstances, such as appropriately geared courses, a need to communicate with loved ones who have emigrated, and teachers or trainers who understand the older users’ needs and uncertainties. For example, in Georgia, “another important type of information is the information on their civil rights. Most of the population of Georgia don’t have information about their status, rights, responsibilities. They don’t know how to access public information even if there is available the piece of information they need.” This is especially important for older populations, according to the local researchers in that country.

Class distinctions can lead to perceptions about whom a venue serves, discouraging those who feel uncomfortable using a given site to access information if they feel unwelcome. This perception of service discrepancies is often a reality when it comes to gender. Some cultures do not allow women to access particular areas at certain times of day, in certain circumstances, and in certain areas (Algeria, Egypt, Indonesia, Nepal, Sri Lanka, Uganda, Turkey).

Proper training of operators can lead to enhanced user education, which ultimately encourages user application and practice. Eventually, under proper circumstances, enhanced user capacity can lead to peer training, ultimately strengthening community building. In many of the country reports of the Landscape Study, parents have been observed learning how to use technology in order to help their children with schoolwork. Equally, students are sharing their computer skills with their parents, either to teach them how to use the equipment or to gather information from computers that their parents request.

An example of a flourishing capacity-building project that trains public-access-venue operators comes from the Dambulla Public Library in Sri Lanka. This library's project illustrates how the dedication of a trained operator who caters to the needs of the users, as well as collaboration between institutions and commitment to improving awareness, can make the difference in the success of a venue: "The Dambulla library opened in 1968 but it took ten long years to get it up and running. A temporary librarian was appointed in 1978 and she started work with one book rack, a table, four chairs and 60 books. But she had 97 members and that was remarkable for this rural area. Today the library is thriving with over 15,000 books, periodicals, newspapers and a special section for the library. But what is remarkable about this library is the proactive measures taken to meet the information needs of the community using digital technology." Because over 90% of the population depends on agriculture for their livelihoods, there was a need for access to agricultural information. An AGRINET (Agricultural Information Network of Sri Lanka)-supported program was implemented as a response to that need. Through the Dambulla Public Library, farmers are provided with access to pertinent information, an arena for discussion, and a facility that collects and disseminates indigenous knowledge. For support services, the library communicates with specialized farming agencies, the local agricultural office, the economic center, and other local officials. A seminar held to introduce these services to local farmers revealed that none of the farmers had ever used a library before.

Without proper operator training, user training will develop much more slowly, if at all. Some students are utilizing computers in schools, but that training is limited to youth, leaving most other populations without adequate knowledge on how to use ICT tools. Some older populations may be exposed to ICTs in their jobs, but many have no exposure at all. Particularly at risk are

elderly populations who have never been exposed to modern technology and who are less likely to receive training in ICT usage.

Additionally, as previously discussed, the use of infomediaries can make a marked difference in successful ICT usage. In their role as liaisons between communities, infomediaries can help to bridge the information needs of communities. Infomediaries are crucial links for capacity building because they help to connect people and communities with technology, provide connections to remote and underserved communities, and connect youth with older (and other non-ICT literate populations) through youth training programs that enable digitally literate youth to work with less-experienced users.

According to the Ugandan Ministry of Education and Sports, "education is a key component of human capital quality that is essential for higher incomes and sustainable economic growth. It is also recognized as an essential ingredient in poverty eradication. The Uganda Population and Housing census (2002), states that education is not only fundamental for well-being, but also a fundamental human right. Education is crucial for poverty eradication, as it equips the population with the information and the ability to make informed choices."

The primary information need for underserved communities in a majority of the countries studied was education. Whether education was needed for youth or adults, basic education or technological training, distance learning, or vocational knowledge, a preponderance of responses from both users and operators who visited ICT venues was the desire for additional training opportunities. Also important was access to news, entertainment, health and personal information, and government services, but without attention to individual and specific community needs, "generic" information serves little purpose. What use is international news if you need to know who will buy your

fish nets? What use is information on diabetes if you are infected with HIV/AIDS? What use are movie times in Dakar if you want to know when the festivities begin in Pikine? Further, women need information that may differ from what men need: women need data on healthcare, childcare, their rights, etc. (Hambly Odame, 2005; Olatokun, 2008; Wheeler, 2007). Youth need information on job opportunities and school-related information. In Ecuador, “the Internet provides opportunities but it is designed from the top down. We need to look at the usability of services to users.”

South Africa has responded to the great user demand for HIV/AIDS information by adapting appropriate media and developing appropriate content for its target audience. This sector has explored the potential of alternative multimedia platforms including radio, TV, print media, billboards, and using face-to-face orientation and training programs. One of these projects, Soul City, uses multimedia edutainment to address a broad range of health-related topics, primarily targeted at HIV/AIDS. These programs target children as well as adults through a mixture of print media, outdoor marketing, television, and radio with outreach and support programs. They also partner with other organizations to produce newsletters on health and communication issues, and focus on HIV/AIDS awareness and life skills. Local media go beyond public access computing, and offer new opportunities for synergies and collaboration.

Beyond production of content for local relevance, it is important for social development for users to produce their own content. This user-produced content serves the local population, as well as “fosters authorship and interactions and helps to develop literacy skills.” Rede.Lê (the Digital Inclusion and Literacy Network, www.ufmg.br/rede.le/) in Brazil is a collaborative public-private association that promotes collective production of knowledge via Internet-facilitated cultural exchange among communities. Its goal

is to promote the development of existing local activities and create new projects through the use of ICTs. Through this network, telecenters are being utilized to create local content through radio and television. They produce “CD-ROMs, websites, printed and on-line publications, and books and others, exploring content related to local sustainability, education, cultural patrimony, design, graphic arts, hardware maintenance and the creation of open source software.” Through “TV Read” and “Radio Read,” communities are creating their own programs, facilitated by Rede.Lê, which provides access to online courses that teach users how to publish Internet content. “Thus, the new information and communication technologies (ICTs) gain a new status: the sole purpose of literacy, become a means of production of cultural goods” (A Rede Lê, 2009).

Ultimately, we return to user needs. As stated in the Brazil report, “the education system has ... failed to equip many Brazilians to succeed in the workplace.” Beyond education, it is necessary to determine what the users need. If employment is a primary focus, then resources need to be directed to skills that will increase employability (Garrido, Sullivan, Gordon, & Coward, 2009; Sullivan, 2009). If current information is the need, then updated data will best serve the community. Not only do users need current information, they need to know where to access this information. Our Peruvian researchers mentioned that users do not know what options they have for access to current information. Honduras needs information on agricultural supplies, entrepreneurship, and micro-enterprises; Moldova needs information on human rights; Georgia needs official information to be accessible at more local sites, rather than having to walk twenty kilometers to access up-to-date information; Kazakhstan desires uncensored information about lifestyles and social and economic issues; Uganda craves recreational information and interests to draw people away from “activities that may be detrimental to their health, especially

social vices including prostitution, drug abuse among others. Most of the respondents hoped that with access to better entertainment activities through computers and provision of leisure reading materials in libraries, this could help to reduce the social vices.”

CONCLUSION

Fundamentally, we must address three primary issues in order to better serve the information needs of underserved populations: the production of locally relevant content, information produced in local languages, and building user and operator capacity. The application of ICTs into a user’s daily life is undermined if the content is not directly targeted to the needs of the local population. The drive towards relevant content, however, must take into consideration literacy levels, available technology, cultural and regional variations, and the capacity of the users to use any given piece of technology. Emphasis must be placed on user and operator training, and on increasing user awareness about ICTs, so that ICTs can be utilized to their full potential and directed towards underserved communities. Further, it is essential that information is current in order to serve many occupational and social needs.

Vital to including underserved communities is the production of content in local languages, which includes the consideration of illiterate populations. A potential solution utilizes infomediaries, or community liaisons, who can help connect populations with varying information needs. It is hoped that communities ultimately begin to create their own content, rather than merely consuming existing online content, which is often developed by and for specific consumers, most often western. To accomplish this outcome, attention needs to be given to building the capacity of operators and users so that access is not the primary issue, but content production becomes the goal.

The provision of information must reflect user demands, otherwise we are wasting our resources on projected needs that do not serve the targeted populations. As stated in the Sri Lanka report, “information provision has to be very focused and targeted to meet the needs of underserved communities” and “the benefits [must be] tangible to the user.”

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Chapter 9

Success Factors for Public Access Computing: Beyond Anecdotes of Success

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ABSTRACT

Throughout this book, we have detailed the profile of a public access venue user, discussed the role of venue staff in public access venues, identified the critical role that trust plays in use of public access venues, and demonstrated some barriers to use of venues, as well as explored how gender is situated in the ICT world. In this chapter, we will explore and seek to answer the question: what are the common factors that contribute to the success of public access ICT centers, especially in underserved communities?

INTRODUCTION

Throughout this book, we have detailed the profile of a public access venue user, discussed the role of venue staff in public access venues, identified the critical role that trust plays in use of public access venues, and demonstrated some barriers to use of venues, as well as explored how gender is situated in the ICT world. In this chapter, we will explore and seek to answer the question:

what are the common factors that contribute to the success of public access ICT centers, especially in underserved communities?

To discover the success factors of public access venues, we conducted a detailed analysis of the common factors that contribute to the success of public access ICT centers in 25 developing countries. We devoted special attention to libraries and telecenters for our analysis of success factors, since these venues generally intend to contribute to

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public well-being and development. Nonetheless, we also include a smaller section on cybercafés in the analysis of success factors as well.

For this discussion of success factors, it is important to clarify what constitutes success. Each community and each type of venue defines “success” its own way; one person’s failure may be another person’s success. What constitutes success can also change over time. Richard Heeks analyzes total failures, partial failures, and successes of information systems for developing countries, and defines “success” as instances where “most stakeholder groups attain their major goals and do not experience significant undesirable outcomes.” He also notes that it is difficult to assess success or failure of ICT initiatives for development because of a lack of literature in general, a lack of evaluation in particular, and an excessive focus on case studies (Heeks, 2002, p. 102). David Gichoya analyzes factors for successful implementation of ICT projects in government and points out that success factors are “occurrences whose presence or absence determines the success of an ICT project. They can be drivers or enablers [...] Their absence can cause failure and their presence can cause success” (Gichoya, 2005, p. 179). Based on the definitions offered above by key scholars in the ICT field, we identify and discuss the factors that contribute to equitable access and meaningful use of ICT through public access venues by underserved sectors of the population in the developing countries we studied. “The evidence to date suggests that although ICTs can make a significant difference to the lives of poor and marginalized communities, many well-intentioned projects have failed” (Unwin, 2009, p. 26). By offering a better understanding of success factors across three types of public access centers in 25 countries, rather than just one type of centre in one country or region, this chapter can help policy and decision-makers to focus their efforts on issues that make a difference and avoid the failures, partial or total, of past public access to ICT initiatives in developing countries. This study provides strong

validation for these factors as critical variables in policy decision-making, funding allocations, and program implementation aimed at strengthening public access computing and its contribution to community development.

The recommendations from each country were combined and then grouped into five common themes identified as the most salient and common factors that enhance the success of public access venues, with a particular focus on meeting the needs of underserved communities:

1. Understand and take care of local needs first
2. Build alliances with other venues
3. Collaborate with other media and community services
4. Strengthen sustainability
5. Train infomediaries and users

We describe and illustrate each success theme throughout this chapter with examples from the study of libraries, telecenters, and cybercafés in all 25 countries. All detailed country reports are publicly available at <http://tascha.uw.edu/research/landscape-study/>. We refer to them here by country to simplify the reading.

UNDERSTAND AND TAKE CARE OF LOCAL NEEDS FIRST

Our first discovery about what constitutes a success factor is that successful implementation and maintenance of public-access-computing initiatives require a solid understanding of the information needs and resources of the communities the venues intend to serve. Most successful initiatives typically offer concrete solutions for specific issues of local contexts – such as a community’s specific information needs and their ability to build on existing practices in these communities. Community-needs assessment and social-development orientation are especially im-

portant if the public-access initiatives are intended to reach underserved communities.

Schneiderman (2002, p. 2) underscores the challenges in underserved communities: many people cannot benefit from technology “because of high cost, unnecessary complexity, and lack of relevance to their needs.” Meeting local needs is a cornerstone of community approaches in the field of library and information science (Aabo, 2005; Hillenbrand, 2005; Worcester & Westbrook, 2004), as well as Community Informatics (CI) or ICT for Development (Gurstein, 2000; Heeks, 2009; Raiti, 2007; Unwin, 2009).

The critical importance of understanding and serving local needs first is clearly reflected in the findings and recommendations of the researchers in the majority of the countries we studied. They show that for successful implementation of public access venues that serve local development, it is important to have accurate data about the user community, their information needs, and the information systems already in use, as described in the following examples. Nearly all 25 countries reported that while government efforts to expand ICT services are commendable, these efforts do not succeed if the ICT services fail to meet the needs of the local community.

As we learned in Chapter Five and Six, when exploring barriers to use, local and relevant content plays a significant role for users. Many of our country reports make recommendations around how to create local content to increase use of venues. For example, the creation of websites in local languages and with local content information, like health, environment, and agriculture, as well as websites for youth that focuses on education and knowledge building, were frequently noted as critical for success. Bangladesh, Georgia, Sri Lanka, Peru, Namibia, South Africa, and Kazakhstan are all countries that deal with multiple languages spoken throughout the country. Georgia’s research team, for instance, noted that information portals should disseminate information in both Armenian and Azerbaijani. For certain regions in

Peru, the team recommended online information should be more readily available in Quechua, an indigenous language spoken by a large proportion of the population.

Local communities also need to take ownership of the development of ICT programs and content, engaging community members to create practical solutions that improve the lives of individuals in the community. This idea of “social appropriation of ICT” is expressed in different ways across the 25 countries. Social appropriation is a concept drawn from its Spanish original, *apropiación social*. It refers to the local community’s capacity to take ownership of ICT tools, to incorporate the tools into their daily lives and routines, and to turn the tools into practical solutions that help meet the community’s needs. There was much interest in the concept of social appropriation by all researchers during the preliminary analysis of early research results, so it is not surprising most of the researchers were able to document instances of social appropriation of ICT in the final country reports. For example, researchers in Sri Lanka recommended community involvement in order to “give ownership to the project and prevent it from being a purely top down exercise.” In Argentina and the Dominican Republic, researchers reported that the population wanted to incorporate ICT use into their daily lives and to leverage building community. In Honduras, for example, community input has shown the potential to transform telecenters and libraries into spaces for knowledge exchange by creating meeting places not only for literacy training but also for “discussion, action, and struggles.” In Bangladesh, telecenters were found to be successful, especially because they “are attracting users, as they could identify appropriate content and services.”

Many of the research teams emphasized that for ICT to reach and effectively serve local communities, venue operators need to promote a positive information culture that includes constructive attitudes to information sharing and public awareness of ICT services. As we learned in our chapter

on trust and perception of public access venues, public libraries in particular are undermined by perceptions that they service students only, produce old and outdated information, or are simply not “cool” to visit. Mongolia’s team described traditional libraries as places “where study happened, intellect was developed and newspapers were read.” People traditionally consider public libraries as a place to go for reading and accessing print materials, and most research teams suggested that libraries need to create a new public image that embraces technology and offers ICT services. To address current perceptions of libraries as places strictly for students, other adult groups need to be made aware of the library’s information services. Library outreach activities should also align with patrons’ cultural and entertainment practices. The Dominican Republic’s team, for instance, suggested that library coordinators should develop “fun” activities, such as organizing chess tournaments to draw people into the library. An example of successful public libraries is found in Argentina: “In public and popular libraries, the success factors are their strong integration into communities, the gratuity and accessibility of their services, the varied activities they supply, the support they receive from the State, and the information and exchange networks they have established.”

Creating a positive-awareness campaign and taking calculated risks might revive public libraries from the “current state of decay, lack of capacity, and tired mentality” researchers observed in Mongolia and elsewhere. Moreover, public access venues need to address people’s perceptions of information. The former Soviet republics have an extensive network of public libraries. Researchers in these countries noted that the extensive-yet-decrepit public library system in these countries no longer serves the community’s actual needs. In Georgia, researchers found that many people believed they could not find high-quality information at the library because the building was poorly maintained (no heat, no funding). Perceptions

affect the credibility of the venues more than the actual content or services they provide.

Utilizing positive awareness and public relations campaigns to improve images of public libraries can generate ideas that could secure additional funding. For example, the Kazakhstan team recommended that the library system study the public relations strategies used by banks in that country, which have been successful in raising public awareness of their mission and services. With a similar idea in mind, Moldova’s researchers suggested that local public authorities, such as the mayor or local councils, get involved in publicity campaigns. The involvement of local authorities would also help local governments become aware of the needs of underserved populations.

Most cybercafés have no explicit strategy for assessing community needs. They rely on growing demand for ICT services, even in marginalized communities, and the population’s capacity to pay for these services. In this sense, the mission of cybercafés is simpler, and their success does not require a sophisticated understanding of local needs or ways in which ICT can contribute to development. Libraries and telecenters, however, do have a development goal, and they require a more in-depth understanding of local needs and how to serve the local population, not just with regards to access to computers, but also with respect to services that contribute to development.

BUILD ALLIANCES WITH OTHER PUBLIC ACCESS VENUES

Crucial to the success of most projects and programs, regardless of industry, is collaboration and cooperation. Most research teams indicated that collaboration among and between different public access venues are currently limited but can yield powerful results if collaboration was promoted and strengthened. Collaboration between networks of libraries, telecenter associations, and cybercafés can enhance partnerships between these venues

within a community, making public access to ICT stronger and more effective at achieving the first success factor outlined above: serving the needs of the local population.

The collaborative model is convergent with van Dijk's notion of interdependence among different actors, a notion that is characteristic of the information society. "Actors are no longer independent... They are dependent on each other. In networks, actors make agreements and more or less freely engage in associations. They cooperate on the basis of complementary strengths and they become *interdependent*" (van Dijk, 2006, p. 73). Along the same lines, the research team in the Philippines recommends: "Internet café owners should organize themselves locally, regionally or nationally in order to have a proper forum where they can air their concerns regarding issues that may affect their businesses. They should engage their LGUs [local governments] in order to have a stake in ICT-related policies. They should also call for the creation of a local ICT council."

Most research teams in our study noted that collaboration takes many forms. Although this trend was noted across all countries, it was especially prevalent in Latin American countries. The Peruvian success factors for public access ICT centers included collaboration among similar venues: "the rich practice of association and networking of special libraries... linked by a common theme: AIDS, agriculture, forestry... [They] may have different goals, but they share some common problems and may share learning."

Public access ICT venues offer a unique opportunity to develop a new partnership model that capitalizes on the strengths of both nonprofit (libraries, telecenters) and for-profit (cybercafés) initiatives in a manner that will contribute to human development. In Costa Rica, some telecenters have partnered successfully with libraries. In such cases where telecenters are organized within libraries, the telecentres benefit from an established infrastructure and the ability of librarians to teach ICT literacy. In turn, libraries that host telecenters

can use the Internet to supplement out-of-date library resources and better serve their communities. Brazilian researchers also suggested these innovative solutions for creating new visions of public libraries – the creation of libraries in telecenters and vice versa. For example, a library in the state of Bahia bought computers with support from Identidade Digital, a program that supports telecenters.

From a different angle, Nepal's research team reported the use of a public/private partnership model where private, urban cybercafés serve "as capacity building and supporting partners for [public] telecenters in rural areas." The team in Nepal also calls for stronger "collaboration and networking among venues and relevant stakeholders to learn from each other and avoid duplication of effort." Moreover, the team in Honduras offers a slightly different perspective: "There should be joint efforts to know where the venues are located or where they try to settle, in order to avoid a double effort having several venues in the same place or, in other words, preventing a venue's sustainability to be affected due to the closeness of other venues that offer services at lower cost."

COLLABORATE WITH OTHER MEDIA AND COMMUNITY SERVICES

As seen above in the second success factor, collaboration can go a long way in ensuring the success of a venue. Public access venues were more successful, however, when they extended partnerships and collaboration beyond public access venues to include other community services and media important to the community. Most notably, these collaborations include successful partnerships with community radio stations, health clinics, community organizations and government offices, as well as creative uses of mobile phones in combination with public access venues. This partnership model is similar to models used in other public services. "Public services are now often

provided by a complex network of partnerships, contracts, and alliances between government agencies, nonprofit organizations, and businesses, rather than by hierarchical government bureaucracy” (Huang & Provan, 2007).

Collaboration opportunities exist with other development organizations as well. For example, Namibia established public access computing kiosks in Community Information Resource Centers for different community development activities. In South Africa, where HIV/AIDS centers operate as public access ICT venues, researchers noted the potential for leveraging further collaboration for program implementation: “The scoping of the HIV/AIDS centers strongly suggests that there is an opportunity to explore a programmatic intervention by ICT funders in partnership with one or more of the HIV/AIDS programs discussed.”

Similarly, researchers from other countries offered innovative, concrete suggestions of the relation between public access to ICT and other media, most notably community radio and mobile phones. As Kazakhstan’s team explained, “Combining various media types allows maximizing the impact and ensuring all groups involved are covered. Radio may not be appealing to young Internet users while rural elderly population will never choose [a different] option.” Researchers in Algeria recommend the “mobilization of public mass media (Radio and TVs) to educate people (especially disabled and illiterate people) on best information practices.” Uganda’s researchers argued for “strategic establishment of a community radio at every Public Library facility per district.” A strong linkage between public access venues and community radio is detected and requires further investigation.

Teams studying the Philippines and Argentina both observed that these countries have greater access to cell phones than computers and, therefore, recommended expansion of government services through cell phones. The Philippines research team specifically advocated for the expansion of text messaging services with development-oriented

information. Finally, Mongolia’s team promoted “the range of information vectors (including radio, TV and mobile phone) that can be developed at community level.” While our study did not explore the interaction of ICT in public access venues with other technologies, such as community radio or mobile phones, additional research is warranted to get a better understanding of the opportunities presented by better collaboration with other media.

STRENGTHEN SUSTAINABILITY

Sustainability of public access venues is a critical issue that touches on multiple dimensions: financial, political, technical, social, and cultural.

Government funding and support for public libraries has been declining in many countries, and donors’ interest in telecenters has declined as well, threatening the sustainability of these public access venues. Successful telecenters have found creative ways to generate revenues, and popular libraries have explored innovative ways to build strong community support. But local community involvement alone cannot ensure the sustainability of public access ICT. Governments must also work to create an environment that strengthens and sustains public access to information and ICT resources if they are to meet the needs of underserved communities.

Challenges to sustainability have been extensively reported in the literature about public access to ICT, especially for the telecenters (Bailey, 2009; Best & Kumar, 2008; Gurstein, 2005; Jensen & Esterhuysen, 2001; Proenza, 2001; Toyama et al., 2005). Many telecenter projects have simply failed after the original donors have left. Mayanja (2006) observed, “financial and social sustainability of telecenters remains one of the key challenges of the digital inclusion programming more than a decade after.”

In an editorial of the *Journal of Community Informatics* dedicated to telecenter sustainability, Michael Gurstein suggests:

What is meant by “sustainability” in the ICT context is less a matter of a broad configuration of “civilization” and more to do with day to day slogging by community members in meeting the payroll and keeping the machines running amidst the wear and tear of daily life (both physical and electronic) while always keeping in mind how the technology could be used to respond to the needs (and opportunities) of their local communities. ... When we are speaking of “sustainability” in the context of ICTs we should perhaps be speaking of “sustainabilities” rather than “sustainability,” for there are many dimensions of this issue which go much beyond the simple economic and the meeting of weekly payrolls. (Gurstein, 2005, p. 2)

As succinctly summed up by researchers in Costa Rica, the “digital divide is only a small part of the economic divide.” When governments plan and implement ICT services, they should be mindful of the needs of disenfranchised and marginalized communities. Kazakhstan’s research team advocated affirmative action to serve the needs of marginalized groups in order to create a more inclusive information society. The country’s Program on Reduction of Information Inequity has so far failed to identify vulnerable groups, such as the homeless or the disabled. These groups in particular need extra assistance to access information, including being able to find government services.

In our study, most research teams pointed out the importance of political sustainability, e.g., having government departments devoted to ICT development. Collaborating with other governmental units – a “Ministry of ICT,” as it is called in Colombia – could oversee the provision of online content regarding citizens’ rights and governmental services. Argentina’s research team argued for the adoption of a transparent e-government concept: “Public information venues could become privileged places of training citizens to participate in E-Government and E-Democracy processes.” Namibia’s team advocated for more

venues where citizens could access government information free of charge.

In addition to financial and political sustainability, technological sustainability needs to be ensured by making technology work in low-resource environments. Public access venues aimed at underserved communities frequently face technical limitations due to working in resource-constrained environments: poor electricity, connectivity, and outdated technology make it especially hard to operate effectively. Making ICT sustainable anywhere obviously requires basic infrastructure: electricity, equipment, and Internet connections. This infrastructure also includes support systems (e.g., technical support, troubleshooting, and networks) to maintain information systems and ensure that they function efficiently, even in environments where resources are scarce.

Many countries highlighted the need for electricity and basic infrastructure to support ICT. Researchers in Bangladesh credited the relative success of urban (as opposed to rural) ICT venues to the availability of an uninterrupted power supply. The reports from Algeria, Ecuador, Georgia, Kyrgyzstan, and Peru all called for increased support of basic infrastructure in rural areas. Even where buildings, electricity, and computers were available, Internet access and bandwidth were problematic. The Bangladesh research team noted that “the performance of the venues with Internet connection is way better than the venues without Internet connection.” In Brazil, researchers identified infrastructure in the form of “updated equipment (e.g., adequate computers, Internet bandwidth)” as a critical success factor for use of ICT.

Beyond basic infrastructure, further analysis of the success factors and recommendations for use of ICT in public access venues revealed that many of the research teams addressed additional issues of sustainability. The Costa Rican team attributed the failure of many rural telecenters to the challenges beyond installation, including maintenance of the equipment and software up-

dates. Because only government technicians are permitted to repair equipment or address software problems and viruses at these telecenters, many of them have only two out of six computers working at any given time while they await technical support. The Bangladesh team expressed this problem as a need to “strengthen the support system (e.g., technical, know-how, and operational) for the public access venues.”

Maintenance is only part of the true cost of sustainable infrastructure. Ongoing costs must be considered in addition to initial investment. Researchers in Namibia found that “the cost of computers and their software is limiting their availability. Government should therefore have a policy to support the use of Free and Open Source software.” In Bangladesh, where the availability of electricity in rural areas is “dismal” and unlikely to change soon, the recommendation is for an investment in “low power consuming device[s] with higher battery life” in order to bring ICT services to the public. These recommendations point to the need for forethought and planning in order to make technology sustainable in low-resource environments.

Issues of social and cultural sustainability were only tangentially reflected by the majority of the research teams, and yet they are critical to the success of any initiative that is to contribute to development (Melkote & Steeves, 2001). More research is needed to explore and better understand the implications of cultural and social sustainability of public access centers.

TRAIN USERS AND INFOMEDIARIES

As we have identified in previous chapters, the role of infomediaries, whether formal or informal, is key. The fifth and last theme in the success factors that emerged from our study in 25 countries has to do with training users and operators of the public access venues. If communities are to benefit from public access to ICT, both users

and operators need to have the basic training and know-how in order to use and operate the services. Building this capacity starts with basic user literacy training (reading and writing) and includes basic digital literacy (use of computer, its basic applications and features). Strengthening the training and capacities of librarians and other operators of public access venues is also critical to the operator’s success, especially if they are to provide guidance, training, and support services to users, directly or indirectly. Trained and motivated librarians and operators make better information brokers, or “infomediaries,” who help make information resources more meaningful to the local communities, and help bring local knowledge and information resources to the public access venues. In the words of the research team from Bangladesh:

Either we have to make [the] whole population literate over-night or we have to develop some mechanisms to make disadvantaged people immediately access benefit of ICTs. The research shows that one of such mechanisms is [an] Infomediary deployed in non-urban telecenters. Infomediary is a human interface between digital content and illiterate or print-disable[d] people. The research shows, where there is an infomediary the user profiles are broader including illiterate people. Furthermore, the performance of the infomediary influences the performance of a telecenter; where such infomediary was found.

Honduras researchers described ICT training as “elemental” to success. They also suggested that the success of cybercafés ought to be passed along to society by taking responsibility for training the population in the use of ICT, thereby “boosting the capacities of the individuals and generat[ing] a major communal impact.” Researchers in Indonesia took the call for increased digital literacy a step further, advocating universal, free ICT training for all, especially for underserved populations. The Argentina team pointed out that information

literacy training for users should encompass their real interests and needs in order “to make a real appropriation of ICTs.” Similarly, the Ecuador team called for the development of ICT training programs that address the needs of “special groups,” such as “women, illiterates, non-Spanish speakers, and older people.”

Researchers in Georgia extended the call for training to include venue operators, who should learn more about searching for health and education information. The Malaysia research team listed centralized training for venue operators as one of its main success factors. Along these lines, researchers in Kyrgyzstan noted the need to “renew training and education curriculum of the ICT specialists to meet requirements of fast growing industry.” Local businesses could also benefit from training. Indonesia’s team recommended that the government should support local e-commerce by training “small to medium businesses to enable them to upload their products to the Warmasif[telecenter] website.” The Moldova team argued that librarians and venue operators should be trained in both fundraising and grant proposal development in order to acquire more financial support for ICT programs.

Extending the notion beyond the formal role of librarians or telecenter operators, other informal infomediaries play a critical role as well. Abrahamson & Fisher (2007) describe this informal role as “lay information intermediary behavior” (LIMB). For example, LIMB refers to the behavior of a person who finds information for another member of the family, for a friend, or a neighbor. This indirect usage was also analyzed by Schilderman (2002) who suggested that “social networks are the foremost source of information of the urban poor” and that the poor tend to believe people they trust rather than perhaps more informed contacts with which they do not have close ties. He then developed the concept of “key informants” (aka “infomediaries”) defined as “people inside, or sometimes outside, a community who are knowledgeable in particular livelihoods aspects, and are

willing to share that knowledge” (Schilderman, 2002, p. 5). In order to tap into this resource to help serve the information needs of this underserved population, he cited a number of success factors, including: involvement of the poor themselves as equal partners, building on local knowledge, the use of community-based communication methods, and building the capacity of community-based organizations and key individuals within them. More research on LIMBs and the resulting indirect usage of ICT can help us better understand the role of infomediaries and the diffuse effects of ICT use in public access locations, especially when dealing with underserved and marginalized communities.

In sum, training users and infomediaries to become effective users of ICT is critical to the success of public access venues. While cybercafés tend to offer limited training to users, libraries and telecenters have a strong role to play in this domain. These venues offer basic digital literacy training and help users (and indirect beneficiaries who may be helped by these users) make effective use of ICT for community development. To do this well, libraries and telecenters need to start by making sure their staff (librarians and operators) are digitally literate, and that they can, in turn, help train and support users, particularly those most marginalized and excluded by society. It can even be seen as a measure of success that libraries and telecenters train users who then go to cybercafés to make use of ICT services to advance their development goals. Public access to ICT is not a single or isolated event, but a system of practices and opportunities that enable underserved communities to take advantage of the ICT tools to promote empowerment and development. In this venture, there is a role for libraries, for telecenters, and for cybercafés. And they will be all more successful if they work together.

CONCLUSION

When we understand the factors that contribute to the success of ICT venues in the communities they serve, we are one step closer to fulfilling the promise of ICT as a tool for empowerment and human development. Awareness of the success factors will also help avoid the partial or total failures of public access initiatives. Drawing on data from a study of public libraries, telecenters, and cybercafés in 25 developing countries, we have presented five common success factors for venues that offer public access to ICT:

1. **Understand and take care of local needs**
first: Failure to understand and respond to local needs may be the most frequent reason for failure of public access initiatives to ICT (and many other development projects). In public access ICT initiatives, meeting local needs is most clearly expressed in the production and availability of locally relevant content, available in local languages, and with appropriate support and help for users from marginalized groups to make effective use of such content. Sound community-needs assessment, and continued interaction and reassessment to adapt to changing needs, is a critical factor in the success of public access ICT initiatives, particularly to help realize the community development role of libraries and telecenters.
2. **Build alliances with other venues:** In the literature, as in the practice of most of the local research teams we worked with in this study, we find research on libraries, telecenters, or cybercafés tends to focus on one type of venue and excludes the other two types. With few exceptions, bridges for collaboration or comparison between different types of venues are rare. In fact, some of our research partners were surprised to discover similarities and opportunities for convergence with the other venue types.

With telecenters and, especially, libraries in developing countries facing a crisis of credibility and trust, partnerships between libraries, telecenters, and cybercafés might be the key to their survival and sustained relevance. More research on opportunities for collaboration and partnerships between libraries, telecenters, and cybercafés is needed to inform specific recommendations.

3. **Collaborate with other media and community services:** Just as libraries, telecenters, and cybercafés need to work together and capitalize on their respective strengths, other media and community services complement and support the role of public access ICT initiatives and their contribution to development. Collaboration with community radio stations and partnership with community organizations that offer training, job placement, childcare, adult education, etc. are required for public access ICT to effectively contribute to human development. For example, more than ICT skills alone, soft skills and support services, such as “training in general job-seeking skills (e.g., punctuality, interviewing, appropriate attire) and assistance with practical steps (e.g., job search, application process, transportation),” are essential to help low-income populations increase income and employment (Garrido, Rothschild, & Oumar, 2009). The interaction between public access venues and mobile phones also needs to be further investigated. While some believe mobile phones will replace computers, and that the proliferation of mobile phones in developing countries makes public access computers superfluous (e.g., Veeraraghavan, Yasodhar, & Toyama, 2009), it is more likely that mobile phones complement, rather than replace, the information services and opportunities offered by computers and public access ICT.
4. **Strengthen sustainability:** Sustainability includes political, financial, social, technical,

and cultural factors. Financial sustainability appears to be more easily accomplished in cybercafés, a phenomenon reported a decade ago by Proenza and others (Proenza, 2001). On the other hand, cybercafés experience a strong tension between their need for revenue generation and serving the needs of community development. All venues face difficulties related to technical sustainability (e.g., equipment maintenance and obsolescence), and all venues face different challenges related to political, social, and cultural sustainability. More successful venues tend to have stronger political and community support, and serve local populations in a local and culturally appropriate manner. Nonetheless, financial sustainability gets more attention than other types of sustainability for public access venues across all countries in our study. More research is needed on differences and similarities related to political, cultural, and social sustainability across public access venues. A larger question also warrants further study: if cybercafés are more successfully offering sustainable public access to ICT, what is the role for libraries and telecenters to ensure that public access effectively contributes to community development?

5. **Train infomediaries and users:** Effective training is the fifth common success factor for ICT in public access venues. It includes training people to use the technologies and services, as well as training infomediaries (librarians, operators) to support and serve the needs of the disadvantaged communities who use their venues. Schilderman identified seven key characteristics of effective infomediaries: their capacity to provide information in an accessible format; their willingness to share information rather than hold onto it; their ability to get hold of information and adapt it to a local context; their experience, education, knowledge, and

reliability; their accessibility, proximity and helpfulness; their social sensitivity and capacity to involve residents; and their leadership qualities, influence, and moral authority (Schilderman, 2002, p. 28). Combining all these with technical proficiency and digital literacy may be a tall order for any librarian, operator, or staff of a library, telecenter, or cybercafé. But effective attention to these skills and capacities may be, in turn, the solution to creating a new role for libraries and telecenters in the community.

This is the first systematic comparison across multiple countries to identify success factors in different types of public access venues. Previous studies identified similar success factors in one country or one type of venue. However, the broad-based validation in this Landscape Study provides solid guidance to policymakers, donors, and practitioners who want to focus their efforts where they can make the most difference to the communities they serve. Furthermore, our findings provide clear direction for future research to better understand each success factor in its local context. We also recommend considering the implications of this study for measuring, and ultimately improving, the impact of public access ICT in underserved communities around the world.

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Chapter 10

Behind the Scenes: Research Methodology and Analytical Framework

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ABSTRACT

This chapter describes how the global Landscape Study was designed and carried out. The Landscape Study informs all the findings and results presented in this volume. The authors describe here the criteria for the country selection and selection of local research partners in each country, the procedures and instruments for data collection, the way we analyzed the data, and some of the limitations of the study.

COUNTRY SELECTION

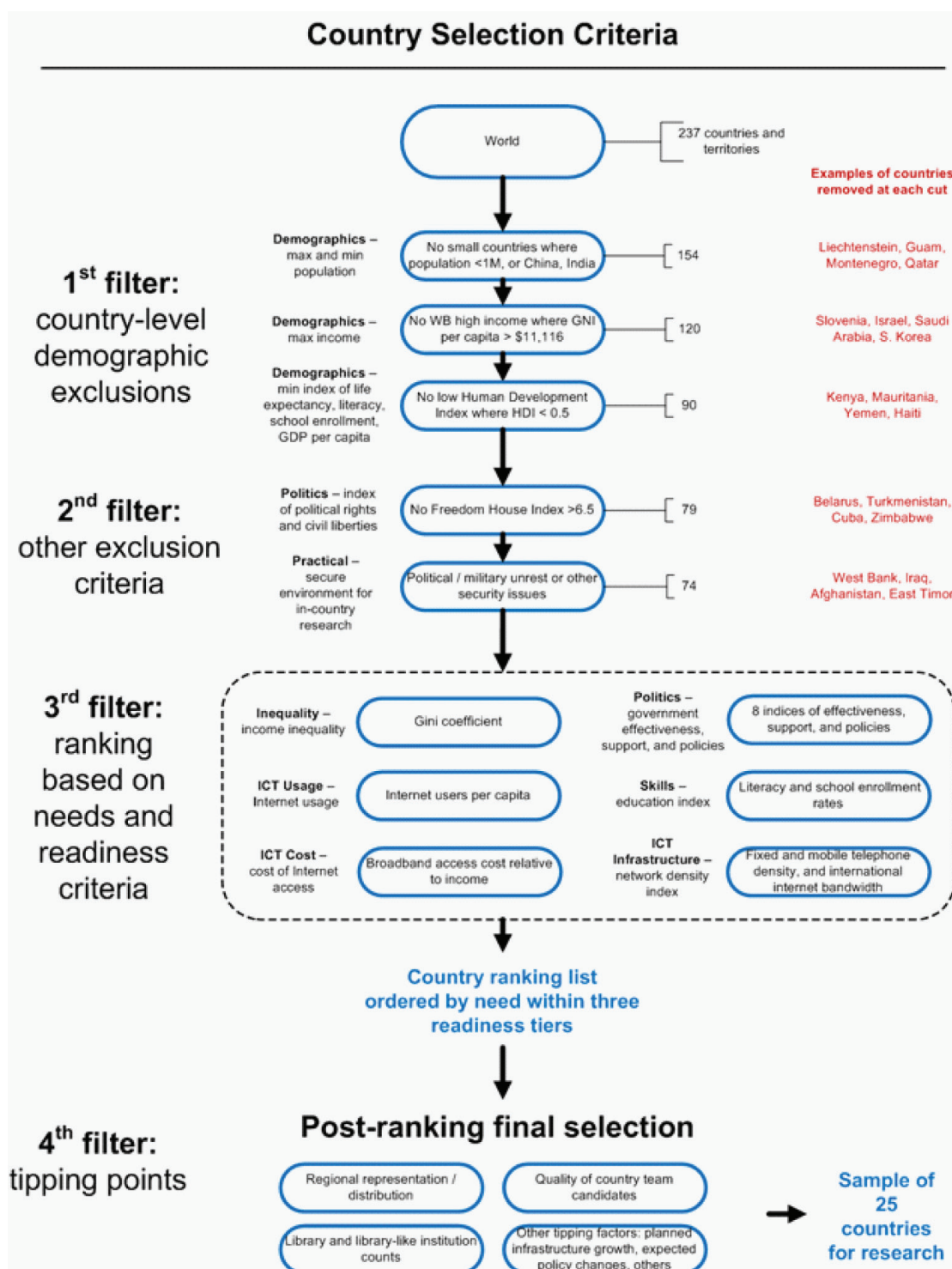
This international study aimed to understand the landscape of public access to ICT in a variety of contexts around the world, focused on “middle of the pyramid” (Prahalad, 2006) countries, and especially on countries with existing public library systems. The country selection went through a series of filters based on demographic data, feasibility criteria, and ranking criteria,² as described in Figure 1.

The first filter used publicly available demographic data to reduce the total 237 countries and territories around the world to a subset of 90 countries:

- Remove all small countries with populations under 1 million, as well as countries with most population (China and India)
- Remove all countries with highest per capita income (over \$11,116)
- Remove all countries with lowest Human Development Index (HDI below 0.5)³

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Figure 1. Country selection criteria



The second filter used publicly available data to exclude countries where freedom of expression or political unrest could undermine conducting independent research, bringing the subset of countries to research down to 74:

- Remove countries with limited freedom of expression (Freedom House Index over 6.5)⁴
- Remove countries with political unrest or security issues (US Department of State travel advisories)⁵

The third filter used publicly available data to rank countries according to needs and readiness criteria. This filter involved creating two composite indices using available data as proxies to help measure what we called information needs and readiness in each country, particularly in relation to ICT use.

- Needs criteria:

Inequality: Income inequality was used as a proxy indicator for measures such as geography, ethnicity, and gender inequalities, where greater inequality suggested greater potential need for public ICT access (Gini index (2006) from United Nations Development Program⁶).

ICT usage: Internet users per capita was used as a proxy indicator for ICT use within a country, where lower ICT usage indicated greater potential need for public ICT access (Data from CIA World Factbook (2007)⁷).

ICT cost: Lowest broadband cost as a percentage of monthly income was used as a proxy indicator for ICT cost, where higher ICT cost suggested greater potential need for public ICT access (Data from International Telecommunications Union's World Information Society Report (2006)⁸).

- Readiness criteria:

Politics: Eight expert-survey-based indices were used, including: government prioritization of ICT, importance of ICT to government's vision of the future, government success in ICT promotion, intensity of local market competition, freedom of the press, corruption perceptions, government effectiveness, and regulatory qualities, where each index served as a proxy indicator to evaluate multiple dimensions of political support and policies, while also suggesting greater potential readiness for public ICT access (Listed in order, data from: World Economic Forum Global Information Technology Report (2006),⁹ Transparency International (2007),¹⁰ World Bank Worldwide Governance Indicators (2006)¹¹).

Skills: Adult literacy and school enrollment were employed as proxy indicators for skills, where high literacy and enrollment rates indicated a greater potential readiness for public ICT access (Data from International Telecommunication Union opportunity skills index (2007)¹²).

ICT infrastructure: Fixed phone density, mobile phone density, and international Internet bandwidth were used as proxy indicators for ICT infrastructure, where higher teledensities and Internet bandwidth indicated greater potential readiness for public ICT access (Data from International Telecommunication Union opportunity network index (2007)¹³).

- Ranking of needs and readiness:

After combining the data into needs and readiness scores for each country, we used a three-tier ranking system representing high, medium, and low readiness, with each tier ranked according to need. This ranking system placed 25 countries in Tier 1 (high readiness, high-to-low need), 25 countries in Tier 2 (medium readiness, high-

to-low need), and 24 countries in Tier 3 (low readiness, high-to-low need). We then applied a filter based on distribution to arrive at a sample of 30 countries where 25% of them would be in the top and bottom tiers of needs and readiness respectively (Tier 1 and Tier 3), and 50% would be in the middle tier (Tier 2). In the selection of countries within each tier, an element of geographic distribution was introduced to make sure there would be representation of countries from all regions of the world. This selection system resulted in 8 countries in Tier 1, 14 countries in Tier 2, and 8 countries in Tier 3, for a total of 30 countries. This distribution was chosen in order to capture more countries in the middle tier of need and readiness, along with a sample of countries that could represent higher and lower needs and readiness based on the defined criteria (Figure 2).

The fourth and last filter in the country selection process to bring the sample size from 30 to 25 countries was based on tipping points, such as regional representation, availability of country-team candidates to conduct the field research,

perceived strength of national library system or importance of other library-like institutions, and anticipation of planned infrastructure growth or policy changes in particular countries. In the end, the most important tipping point was the availability of a qualified local research team to conduct the fieldwork, as described below.

This detailed and careful country-selection process enhanced the credibility and trustworthiness of the research results, as well as their utility in helping us understand commonalities and differences between the countries studied, as well as in relation to other countries not included in the sample. The country-selection criteria are important for understanding the scope of the findings we are presenting in this volume. The study did not include the most populous countries (China and India), even though important changes in public access to ICT are taking place there, especially in cybercafés in India. It does not include all the smallest or poorest countries (e.g., Haiti or The Gambia), even though they may need the most development assistance to provide broader public access to ICT. And it does not include the wealthiest countries (e.g., North America or the European Union), where the landscape of public access to ICT is significantly different than in developing countries. Finally, the study does not include countries where there are significant limitations to freedom of expression or political unrest (e.g., Iraq or Myanmar); conducting independent research in those countries is more difficult, and the landscape of public access to ICT might be significantly altered in those contexts as well.

LOCAL RESEARCH-TEAMS SELECTION

This study was led by University of Washington researchers in collaboration with teams of local researchers in each of the 25 countries in the sample. Selection of research partners was critical to the success of the project,¹⁴ given the

Figure 2. Needs and readiness ranking

Needs & Readiness		Needs	
		Higher and Medium	Lower
Readiness	Higher and Medium	Algeria Brazil Colombia Dominican Republic Georgia Kazakhstan Peru The Philippines South Africa Sri Lanka	Argentina Costa Rica Egypt Malaysia Moldova Mongolia Turkey
	Lower	Bangladesh Ecuador Honduras Namibia Nepal Uganda	Indonesia Kyrgyzstan

exploratory, collaborative, qualitative, and comparative nature of the global study. To select the research partners, an initial call for expressions of interest was issued in October 2007 and widely distributed through specialized mailing lists and web sites. This call resulted in 220 responses from research and consulting teams around the world. The responses were assessed for relevance, experience, and references, and a subset of them was invited to submit a statement of qualifications for this research project. From over 50 proposals received, a final group of 19 qualified local research teams (some researchers representing more than one country) was retained to conduct the country studies, coordinated by the team at the University of Washington. The final selection was based on nine criteria (completeness of proposal, research-team qualifications, organizational strength, relevant research experience, knowledge of public access ICT environment, complicating factors, costs, references, and overall assessment), and on perceived fit with the collaborative nature of the international study.

Lead members of all local research teams were then invited to participate in one of two design workshops (Seattle, Nov. 2008; Kuala Lumpur, Dec. 2008) in which the key objectives and proposed methods for the research project were shared and improved. This early involvement by local research teams in the design process helped to strengthen research design and promoted collective ownership of the larger research process beyond the sheer contractual relation of each team to the University of Washington. This collective ownership was further emphasized by ongoing online communications and a second workshop halfway through the project in which all teams came together to share progress, early insight, and priorities for next steps.

The reliance on local expertise to conduct fieldwork (as opposed to outside experts), and the use of a collectively agreed upon research framework and rationale (as opposed to different approaches and frameworks) greatly contributed to

the trustworthiness of the research, and enhanced the comparability of results. The open process for local team selection, the participatory nature of the research design, and the open and ongoing discussion of early insights emerging from the in-country research teams were all critical factors that contributed to the success of this ambitious research project.

RESEARCH DESIGN

Research Question

The study used a mixed-methods design (Creswell, Plano Clark, Gutmann, & Hanson, 2002) following an integrated, iterative approach that builds on the collective strengths of the research teams, and on emerging lessons from the research process.¹⁵ The guiding research question for this study was: *What are the information needs and opportunities to strengthen institutions that offer public access to information and communication, especially to underserved communities, and especially through the use of digital ICT?*

Research Framework

To answer our research question, we explored different frameworks that could help structure the research process (Bridges.org, 2005; Camacho, 2004; DFID, 1999; Earl, Carden, & Smutylo, 2002; Gomez & Reilly, 2002; Heeks, 2007; Roman, 2003; Whyte, 2000) and chose one of them, the Real Access framework, as a starting point. Real Access was developed by Bridges.org in South Africa in 2005 as a framework for understanding the range of economic, political, educational, infrastructure, cultural, organizational, and other factors that affect whether someone truly has “access” to ICT. In other words, it is based on the assumption that providing computers alone will not solve the access challenge, an assertion that has been validated by the numerous public

access initiatives of the past decade (Alampay, 2006; Bossio, 2004; Dagon, 2001; Delgadillo, Gómez, & Stoll, 2002; Etta & Parvyn-Wamahiu, 2003; Jensen & Esterhuysen, 2001; Maeso & Hilbert, 2006; Parkinson, 2005; Proenza, 2001; Simpson, Daws, & Pini, 2004; United Nations, 2007). Compared to other frameworks, the Real Access framework has been tested on the ground in several countries. For the purpose of this study, it provided enough structure and flexibility to adapt to the research needs and local context of each country in the sample. In brief, we chose the Real Access framework for its simplicity, flexibility, appropriateness, and applicability in diverse contexts around the world.

Early involvement of different stakeholders and local research partners helped us refine the Real Access framework and adapt it to the needs of this research, making sure all key categories and dimensions of analysis were addressed. At the same time, multiple iterations and revisions in the process of research design, data collection, and analysis helped ensure that the most meaningful questions were being asked in the most meaningful way, which would result in interpretations and findings that are useful, credible, dependable, and trustworthy (Villiers, 2005). These are the key design features of our Integrated, Iterative Approach (IIA), also called Integrated Contextual Iterative (ICI) approach (Barzilai-Nahon, Gomez, & Ambikar, 2009), rooted in the interpretivist tradition of social inquiry (Denzin & Lincoln, 2005; Schwandt, 1994; Walsham, 1995).

The original Real Access framework by Bridges.org suggests twelve themes for analyzing ICT use.¹⁶ We used these as a starting point, grouping them into three categories: equitable access, human capacity, and enabling environment. As part of the modifications resulting from research design workshops with country teams early in the study, we expanded some of the categories to address the situation of venues that do not currently offer ICT as part of their services (public libraries in some countries, in particular) and added a no-

tion of change over time (past trends and future directions) to compensate for the relatively static nature of the original framework. In addition, two new themes were added to the framework (social appropriation of technologies and international policy and regulatory framework), making the research framework more complete and robust. The label “social appropriation” is derived from the Spanish concept of *apropiación social*, which implies taking ownership and transforming the use of a project or technology for purposes not necessarily intended by the original designers of the project or technology. See (Camacho, 2002; Echeverria, 2008) for a more in-depth discussion of the concept of social appropriation.

As a result of the research findings, the research framework was further modified, with clearly defined categories and indicators for analysis of the public access landscape. We have called the resulting framework the ACE framework (for Access, Capacity, and Environment). In a nutshell, the ACE Framework is based on the idea that these are the three key dimensions required for understanding public access venues. The three dimensions are interrelated, and together they contribute to a robust public access landscape in a particular location. A detailed description of each one of these dimensions and the variables that influence them is described below. This approach is contrary to early thinking in the ICT-for-development field, which assumed that setting up more connectivity infrastructure was enough to bridge the digital divide, and convergent with other critiques that regard connectivity as only one of the key elements for digital inclusion (Gomez & Ospina, 2001; Norris, 2001; Warschauer, 2003; Wilson, 2004). As Warschauer acutely notes:

A digital divide is marked not only by physical access to computers and connectivity, but also by access to the additional resources that allow people to use technology well. However, the original sense of the digital divide term – which attached overriding importance to the physical

availability of computers and connectivity, rather than to issues of content, language, education, literacy, or community and social resources – is difficult to overcome in people's minds.

The ACE framework further develops each of the key dimensions to offer a comprehensive picture of public access venues and their potential contribution to social and economic development, as schematically represented in Figure 3. Further development of the variables and indicators in the ACE framework will contribute a valuable addition to the research on ICT in public access venues.

KEY DEFINITIONS

As a complement to the analytical framework, we established common definitions and criteria for data collection across all countries, starting with a clarification of what is meant by “public access venue:”

Public Access Venue is an institutional venue with a mission to offer public access to information tools and resources, with services that are available to all and not directed to one group in the community to the exclusion of others.¹⁷

Based on this definition, we identified three main types of public access venues of importance in most countries, and then grouped them under the generic headings “public library,” “telecenter,” and “cybercafé,” with room for “other” venues of interest and importance in a particular country. We used the following definitions for each one of the three main types of venues included in this study:

Public Library: a venue that is open to the general population, funded by the government, and intended to meet local community's information needs as a public service; while all libraries offer books and printed materials, public libraries in developing countries are increasingly also offering access to computers and the Internet.

Telecenter: a nonprofit venue open to the public, which offers ICT as part of its services or other activities intended to help community development. It may or may not charge a fee.

Cybercafé: also called an Internet café, is a for-profit venue that is open to the public, offers computer access and related services, and generally charges a fee. A key difference from the telecenter is that cybercafés do not necessarily intend to support community development (although this may happen as an unintended consequence).

Some countries adapted the venue definitions to fit the particular situation of their country (for example, Cabinas Publicas in Peru are considered cybercafés, but telecentres are called NGO Information Service Centers in Algeria, Community Technology Centers in the Dominican Republic, and Warintek and Warmasif in Indonesia). The exact contextualized definition, when one was suggested, is included in each detailed country report (all country reports are publicly available online at <http://tascha.uw.edu/research/landscape-study/>. See Gomez (2009) for a collection of short summaries for each country). In a few cases, the local researchers excluded venues where fees were charged (i.e., cybercafés in Turkey), when it would have been better to include them for consistency with the global study, and in other cases they included venues that are not fully open to the public but cater to a specific population (Schoolnet in Namibia, studied as “other venue” in that country), resulting in data that is of interest to the country but not quite comparable with findings in other countries.

Each country identified other public access venues of local relevance. In some cases, other venues were studied in detail, in others they are just acknowledged but not studied in depth. For example, community libraries in Argentina, or Mosque libraries in Algeria, were studied as “other venues,” but WiFi plazas, phone booths, or use of mobile phones were not studied, as they

Figure 3. Schematic representation of ACE framework

Schematic Representation of ACE Framework		
1. Access	2. Capacity	3. Environment
<p><i>1.1 Physical access to venue</i></p> <ul style="list-style-type: none"> Location of venue Venue distribution (urban/non-urban) Basic infrastructure (space) Hours of operation <p><i>1.2 Suitability of venue</i></p> <ul style="list-style-type: none"> Universal access (differences between venues serving rich and poor) Venue meets local needs and conditions Physical safety of venue, people, and materials Venue as a place people want to go Competent services (including ICTs) <p><i>1.3 Affordability of venue</i></p> <ul style="list-style-type: none"> Cost in relation to daily needs Financial sustainability of venue Sustainability for ICT services <p><i>1.4 Technology access</i></p> <ul style="list-style-type: none"> Availability of technology (hardware, software, telecommunications networks, internet services) Basic infrastructure (electricity) Appropriateness of technology Physical access to technology 	<p><i>2.1 Human capacity and training</i></p> <p><i>2.1.1 Staff</i></p> <ul style="list-style-type: none"> Level of librarian/operator training (libraries only) Digital literacy Operators' attitude to support information needs <p><i>2.1.2 Users</i></p> <ul style="list-style-type: none"> Perception of venue Venue offers training in skills to use services Venue offers ICT training Digital literacy of users (independent of training in venues) Programs for underserved populations Trust in the venue <p><i>2.2 Meeting local needs: relevant content and services</i></p> <p><i>2.2.1 Local needs</i></p> <ul style="list-style-type: none"> Local needs are met (resources, skills, and operator capacity) Locally relevant content (meeting local needs) Produced in local languages <p><i>2.2.2 Local services</i></p> <ul style="list-style-type: none"> Sharing between venues Urban/non-urban distribution <p><i>2.3 Social appropriation</i></p> <p><i>2.3.1 Venues</i></p> <ul style="list-style-type: none"> Space for collaboration Integration into culture Adapt venue to suit local needs (including ICTs) <p><i>2.3.2 Technology in venue</i></p> <ul style="list-style-type: none"> Space for collaboration Integration into culture 	<p><i>3.1 Socio-cultural factors</i></p> <ul style="list-style-type: none"> Gender discrimination Age discrimination Education discrimination Religion discrimination Socioeconomic discrimination Ethnicity discrimination <p><i>3.2 Political will, legal and regulatory framework</i></p> <ul style="list-style-type: none"> National and regional economic policies support the venues Political will for venues Long-term government strategies to support the venue Coordination of national and local policies International policies to support venue networks Use/censorship of materials (including ICT) in venues Legal and regulatory framework particular to ICT <p><i>3.3 Popular support</i></p> <ul style="list-style-type: none"> Popular support to improve venues (including ICT) Involved stakeholders (including NGOs, civil society, community organizations, etc.) Champion for the cause

are not quite “venues” or don’t have the same institutional nature of the other venues we were focusing on. These other spaces and services are undoubtedly important in information flows in most countries, but they are not covered in our

study; further research about their interaction with public access venues is needed.

In addition to the generic definitions of each type of public access venue, we identified five key inequity variables that the research in all

countries would focus on understanding: income, age, education level, gender, and geographic location (urban/non-urban). Other common inequity variables such as caste, ethnicity, language, religion, or others were left to the discretion of local researchers to explore, if relevant. Data about these other variables is of great local importance, but it is less consistently available across all countries.

DATA COLLECTION

Primary data for this study was collected in two successive phases by local research teams in each country, under the guidance of the UW team.¹⁸ We then conducted several iterations of comparative analyses based on the country reports prepared by each country team. The comparative analyses use detailed country reports prepared by local teams as primary sources. This section describes these two levels of data collection in more detail.

Using the ACE Framework as an organizing principle, we prepared a data collection template for each country to follow in the preparation of their respective reports. This template was discussed and enriched after the initial workshop with all researchers (Dec 2007), and it was used by each local team to prepare an interim report (for Phase One, March 2008) and a final, detailed country report (after Phase Two, Sept 2008) with all the key findings and interpretations for each country. In addition to the full country report, each local team produced and/or reviewed a country profile with key statistical data from different sources for the country, a short summary of findings, and a narrative report that could be edited into a book chapter, which are included in this book following this chapter. All these primary documents are publicly available for consultation and reference at <http://tascha.uw.edu/research/landscape-study/>, including the blank data collection template, all country reports, and a summary of all findings in an easy-to-read format.

The data collection template was designed to help each country research team organize their local fieldwork in order to answer detailed questions about the theme-area issues – Access, Capacity, and Environment – in each type of venue studied, as well as national environment, history, and trends in relation to public access initiatives. Rather than provide the country teams with ready-made interview guides and questionnaires to apply, we preferred to build a collaborative research practice that took advantage of local expertise and talent, emphasizing the requirement to conduct research based on commonly accepted research standards¹⁹ and research principles.²⁰ This approach allowed for a sufficient structure for common elements of design, purpose, and approach, and sufficient flexibility for adaptation to local needs and realities of each research team in each country.

The high-level structure of the data collection template used in each country is summarized in Figure 4.

Each local team conducted the necessary data collection and analysis needed to complete the report template, with some degree of variation across countries. In addition to obvious differences in the complexity and maturity of the public access landscape across all countries studied, some of the local teams had more experience with one particular type of venue and not the others,²¹ and they generally needed more work to study the venues they knew less about. In some cases, the size and diversity of the country (i.e., Brazil, Indonesia) was such that researchers concentrated on a particular region. Some research teams had more active discussion and collaboration with other country teams as the research unfolded. All country teams worked with local students, contractors, or consultants to gather the required information, and all were led by a reputable researcher affiliated with a university, non-profit organization or consulting firm. All in-country research was conducted in the local language, and all the reports were prepared in English.

Figure 4. Final country report template

Contents of the Country Report Template	
1	Extended Executive Summary
2	Methodology
2.1	Venue Selection
2.2	Inequity Variables
2.3	Data Gathering Techniques
2.4	Research Trustworthiness & Credibility
3	Country Assessment
3.1	Overall Country Assessment
3.2	Research Framework
3.3	Information Needs of Underserved Communities
3.4	Charts: Information Needs, Users & Uses
3.5	Economic, Policy & Regulatory Environment
3.6	Probes for Emerging Insights from Phase 1
4	Venue-Specific Assessments
4.1	Venue # 1: Public Libraries
4.2	Venue # 2: Telecenters
4.3	Venue # 3: Cybercafés
4.4	Venue # 4: Other
5	Success Factors & Strategic Recommendations
6	Appendices

Even though each local team was given much freedom to carry out in-country research in the most locally appropriate way (and bound by research standards and principles, as described above), all teams agreed to use *at least* the following data collection methods in each country:

- **Document Review:** Identify and review salient literature in the country, including existing statistical information about population, ICT penetration, public access venues, government policies, and previous research relevant to the study. About forty documents per country were reviewed.
- **Expert Interviews:** Identify and conduct in-depth interviews with at least ten specialists in public access venues. Interview guides were prepared in each country depending on the local needs and context. About 10 to 15 interviews with experts were conducted per country.
- **Site Visits:** Identify, visit, and observe six or more venues of each type (library, telecenter, and cybercafé). Site visits were undertaken for a minimum of a half day, making sure to include both urban and non-urban sites (ideally three of each). While selecting sites, research teams identified typical case samples of each type of venue, including both urban and non-urban sites. On average, there were twenty visits per country with about five hundred sites visited in total.
- **User Surveys:** User information was collected via a survey. A common survey instrument was used to administer a questionnaire. Each country team was allowed to add questions that they felt were relevant to the local context to enrich the overall body of evidence. At each site, every second or third user exiting the venue was surveyed. Teams surveyed between forty and fifty users at each venue and con-

ducted approximately one thousand surveys per country. Given limited time and resources, user surveys were not intended to provide statistically significant samples of the population or of the venues studied. The surveys were exploratory and the results indicated trends and patterns for comparison and further research.

- **Operator Interviews:** Identify at least one operator in each site visited and hold a structured interview to provide a more in-depth understanding of the venue, users, and environment. Around twenty operators were interviewed per country.
- **Additional Optional Data Gathering** (not done in all countries): focus groups with users, operators or experts, additional visits and interviews, peer consultation and review.

It is important to note that this study focused primarily on qualitative data gathering and interpretation to assess the current state and future opportunities in public access to ICT across different types of venues, and across a sample of 25 countries. The numerical data that was gathered, particularly through user surveys, interviews, and document review, must be used and interpreted with care as it cannot explain particular behaviors in specific contexts, nor can it be used as statistical data for generalizations about the venues or the population. User surveys were adapted in each country and varying numbers of respondents were included, in some cases more and in some cases less than what we originally designed. Combined with data obtained from interviews with operators and with other research results available in the country, the user surveys constitute the primary source for information about users in the different types of venues, including gender, age, education, and income variables, analyzed in more detail in other work in progress. Other numerical data, such as counts of venues, proportion of them with ICT, and proportion of them in urban or non-urban

settings, generally come from secondary sources consulted by local researchers.

The data about public libraries is generally more reliable, as there are public records in most countries and international bodies that work with libraries (i.e., IFLA, UNESCO). When available, these official sources were used. Nonetheless, information about telecenters is more dispersed among international agencies and local nonprofit organizations that sponsor them, and information about cybercafés is generally sketchier or not available at all. Information, such as estimated number, characteristics, and locations of cybercafés and, to a lesser degree, telecenters, tends to be an informed estimate by the local researchers, based on what they learned about those particular venues and the context in the country. In most cases, detailed country reports by local researchers indicate the sources for the numerical data about each type of venue in the country.

On the other hand, there is much variability in available estimates about the number of venues, especially cybercafés. While in our study there are numbers that may be exaggerated (the number of cybercafés in Uganda, for example, is estimated at 20,000, a figure confirmed by the local research team), they are missing in others (no estimated numbers for cybercafés in Malaysia, Georgia, or South Africa, for example, and we could not find independent and credible estimates for those countries in other sources). This discrepancy in the numbers means that while the numerical details discussed here may not be an exact reflection of any single country, and estimates about cybercafés in particular may be the most variable, the numbers are nonetheless based on locally informed estimates and analysis which, when combined across all 25 countries, represents a meaningful source of trends and patterns.

DATA VALIDATION

The field research in each country was based on multiple methods for data gathering, conducted in local languages by a qualified team of local researchers. Furthermore, the TASCHA team cross checked the consistency of the data within and across different reports (summary, detailed report, narrative report, statistical profile) and, in some cases, verified the accuracy of data regarding counts of public libraries in different countries. This multi-dimensional approach to the data allowed for various triangulation options, multiple data sources, multiple methods, multiple perspectives, and multiple investigators, all of which add to the validity of, and our confidence in, the findings (Patton, 2002).

Based on these shared research-design elements, each local team designed and conducted field research to best respond to local context and needs, and in a way that capitalized on the team's expertise and networks. Each team identified and researched key public access venues to study in their country, and in consultation with the TASCHA team they produced a preliminary report over a period of two months. Preliminary reports were then analyzed across countries to look for early indications of gaps, similarities, trends, and opportunities, and to inform the direction of the next iteration of the research in what we called Phase Two.

Phase Two lasted about six months, and was launched by bringing together all researchers again in a workshop to discuss the research process, emerging findings, and next steps. We revisited the original research framework and identified and incorporated additional themes emerging in the findings that were not part of the Real Access framework. We also discussed and refined a final country report template, which was used by all country teams to produce their reports in a standard and consistent format. This combination of clear overall structure and flexibility for local adaptations, together with a collaborative approach

that facilitated and promoted communication and cooperation among the different researchers, proved to greatly enhance the robustness of the design and the utility of the findings (Shulha & Wilson, 2002).

Furthermore, the two-phase design, which is part of the Integrated Iterative Approach used in this research, allowed a finer focus in the data collection and analysis. By using this iterative design, early results, preliminary comparative analysis, and peer review helped to identify emerging trends and gaps in the research, and helped to strengthen the utility, credibility, and comparability of the final results (Creswell, et al., 2002).

DATA ANALYSIS

With the massive volume of qualitative data gathered from all 25 countries in both Phase One and Phase Two, we conducted several iterations of comparative analysis to inform the findings in the Landscape Study. Special attention was dedicated to data reduction, data display, and data management (Miles & Huberman, 1994). Analysis was conducted using interpretive scores assigned to each variable of the ACE framework, using facilitated workshops and team discussions, as well as using Atlas TI software for qualitative coding of key concepts in the detailed country reports. All qualitative coding was intended to help find patterns, label themes, and develop category systems as part of the analysis (Patton, 2002).

The interpretive scores and the Atlas TI qualitative coding were based on a detailed coding grid²² developed for this study. The coding grid was based on the ACE framework: variables under Access, Capacity, and Environment (as described in Figure 3) for each type of public access venue in each country, were each ranked using a scale of one to five, where one is lowest and five is highest. All the rankings were performed by the research team at the University of Washington, following agreed-upon criteria and with regular

conversation to discuss borderline cases or outliers that were difficult to code. Furthermore, spot checks and independent rankings were done for several venues and/or several countries to look for salient discrepancies. Very few were found, and in only one case an assigned score was changed following the verification. This verification process highlights the utility of the ranking as a tool for identifying patterns, themes, regularities, or divergences. Furthermore, the systematic coding allowed us to work with “what if” scenarios, offering a spreadsheet as an analytical tool (Meyer & Avery, 2009). The qualitative-analysis software, Atlas TI, was also used to code a subset of variables in the ACE framework across all venues and all countries. This qualitative coding was used to further investigate the patterns and themes in the data. The ability to assign different weights to different variables and compare across countries and across types of venues is an important feature of the integrated, iterative approach in measuring digital divide/s (Barzilai-Nahon, Gomez, & Ambikar, 2009). The interpretive scores are not intended to provide statistical data about public access venues, but a sense of ranking and relative weight of each one of the variables under consideration.

In addition to detailed data coding described above, facilitated workshops and team discussions, research conversations and peer debriefings, were held to conduct SWOT analysis (strengths, weaknesses, opportunities, threats) on parts of the data in order to illuminate the findings and assist the interpretation of the data. In a nutshell, we dedicated over a year of combined skills, training, insight, capabilities, energy, and enthusiasm of a small and interdisciplinary team of researchers, assisted by a network of research partners in the University and around the world, to do what interpretation of findings does best: *making the obvious obvious, making the obvious dubious, or making the hidden obvious* (Patton, 2002).

Numerous products result from this research, including academic papers, technical reports,

and other publications, many of which have been adapted and included in this book, in addition to teaching and learning opportunities for graduate students at the University. This chapter is one of these research results.

LIMITATIONS OF THE STUDY

This study is groundbreaking in its breadth and scope: no other studies have systematically looked at different types of public access venues and across multiple countries around the world. Nonetheless, findings are not easily generalizable without a clear understanding of the specific context and the analytic framework in use. Furthermore, despite the different mechanisms to enhance the credibility and integrity of the data, research was particularly challenging in some countries over others for intrinsic or external reasons (country size and diversity, as in Brazil, Indonesia, or South Africa; or unexpected political turmoil, as in Georgia; or very tight timelines for most researchers, especially those with turnover in the research teams).

The tension between structure and flexibility in research design generally helped to strengthen the research results. We purposefully did not enforce a centrally defined interview guide for fieldwork research, leaving that level of definition to the local researchers in each country, depending on the context and expertise of both interviewers and interviewees. Nonetheless, we did include a short survey instrument that was localized by the teams and, in many cases, complemented with additional questions. We knew the survey sample would not be statistically representative, but we wanted a credible indication of possible trends. Survey results were mostly shared as percentages, not absolute numbers, and in some cases the scales for the answers were changed (for example, the age brackets to distinguish youth from adult), thus diminishing the utility of the survey results.

It has been mentioned before, but worth repeating here: numerical data needs to be handled with special care, as it is not the result of census or statistically significant sample, collection, or analysis. The user surveys were not statistically representative and had country-by-country variations that limit their generalizability. Venue counts and distribution, especially cybercafés, are sketchy and mostly represent “educated guesses” on the part of local researchers. Numerical data presented in this study is mostly useful to uncover general trends and point to interesting areas for further research to be conducted.

LESSONS LEARNED

Conducting a global study of the magnitude of the Landscape Study carries its unique challenges and allowed us to learn valuable lessons. First and foremost, the balance between structure and flexibility is a delicate equation that needs to take into consideration the needs and requirements of the different stakeholders. While pure research with no strings attached to funding would allow for a design that privileges theoretical and methodological considerations, our applied research was constrained by specific requirements and needs of the different parts involved, including funders. Tighter structure allows for more centralized control and could increase the comparability of results, while higher flexibility allows for more adaptation to meet local needs and possibilities. If we were to do this over again, we would either drop the user surveys altogether, or do them with a strong, centrally defined instrument and statistically significant samples of the population.

The collaborative nature of the research process also had its advantages and disadvantages. A relationship that is handled as a consultant contract or a data-collection exercise in which the local teams have no say in research design might be easier to implement, but would likely have less meaningful buy-in and engagement, and

would miss out on opportunities to strengthen the research activities, as we saw in our research. Through facilitated dialogue, the research teams could gain a direct understanding of the intent and scope of the study, and contribute their insight to make it stronger from the outset. Nonetheless, we were not able to set up useful online interaction and dialogue early on, which resulted in lower ongoing collaboration, except in cases where researchers already had existing relationships between them. If we were to do this type of study again, we would start immediately with an online collaboration tool, even if it is a simple mailing list, and focus more energy on the facilitation of the ongoing interaction and sharing between research teams, both during the data collection and the analysis phases of the study.

The scope of the research we undertook meant sacrificing some depth in exchange for breadth. The result is a broad blanket of understanding over a variety of topics in relation to ICT in public access venues, but not enough depth to really understand their intricacies, causes, or effects. In future steps, we will explore ways to adapt the research framework to apply it to in-depth studies of a particular country or context.

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ENDNOTES

¹ An earlier version of this paper was published in *Performance Measurement and Metrics. The International Journal for Library and Information Services*, Vol. 11, no. 3.

² Early stages of the country selection criteria, including needs and readiness rankings, were developed by Chris Rothschild and Chris Coward at TASCHA, University of Washington.

³ <http://hdr.undp.org/en/reports/global/hdr2007-2008/>, last consulted March 1, 2010

⁴ <http://www.freedomhouse.org/template.cfm?page=251&year=2007>, last consulted March 1, 2010

⁵ http://travel.state.gov/travel/cis_pa_tw/cis_pa_tw_1168.html, last consulted March 1, 2010

⁶ <http://hdrstats.undp.org/en/indicators/161.html>, last consulted March 1, 2010

⁷ <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2153rank.html>, last consulted March 1, 2010

⁸ <http://www.itu.int/ITU-D/ict/publications/idi/2010/>, last consulted March 1, 2010 (2010 edition)

⁹ <http://www.insead.edu/v1/gitr/wef/main/home.cfm>, last consulted March 1, 2010 (2009 edition)

¹⁰ http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table, last consulted March 1, 2010

¹¹ http://info.worldbank.org/governance/wgi/sc_country.asp, last consulted March 1, 2010

¹² <http://www.itu.int/ITU-D/ict/publications/ict-oi/2007/>, last consulted March 1, 2010

¹³ <http://www.itu.int/ITU-D/ict/publications/ict-oi/2007/>, last consulted March 1, 2010

¹⁴ Criteria for selection of research teams were developed by Chris Coward, Chris Rothschild, Rebecca Sears, and Ricardo Gomez at TASCHA, University of Washington.

¹⁵ Ricardo Gomez led the research design in collaboration with Chris Coward, Rebecca Sears, and Rucha Ambikar from TASCHA, University of Washington. We acknowledge the significant contributions of Kemly Camacho from Sula Batsu, Costa Rica in development of the ACE Framework.

¹⁶ The twelve original themes in the Real Access framework are physical access, appropriateness, affordability, human capacity and training, locally relevant content, integration into daily routine, socio-cultural factors, local and macro-economic environment, political will and public support, and legal and regulatory framework. www.bridges.org.

¹⁷ Adapted from: International Federation of Library Associations and Institutions (2001). The Public library service: IFLA/UNESCO guidelines for development. In P. Gill et al. (Eds.), *The Section of Public Libraries*. The Hague: K. G. Saur Verlag GmbH München. Retrieved December 4, 2007, from <http://www.ifla.org/VII/s8/proj/publ97.pdf>.

¹⁸ Ricardo Gomez designed the data-collection strategy in collaboration with Rucha Ambikar and Rebecca Sears of TASCHA, University of Washington.

- ¹⁹ Research Standards of the American Evaluation Association (Joint Committee on Standards for Educational Evaluation, 1994): Utility (ensure that research will serve the practical information needs of intended users) Feasibility (ensure that research will be realistic, prudent, diplomatic, and frugal) Propriety (ensure that research will be conducted legally, ethically, and with due regard for the welfare of those involved in the research, as well as those affected by its results) Accuracy (ensure that research will reveal and convey technically adequate information about the features that determine worth or merit of the program being studied
- ²⁰ Research Principles of the American Evaluation Association (Joint Committee on Standards for Educational Evaluation, 1994): Systematic inquiry – evaluators conduct systematic, data-based inquiries about what is being evaluated. Competence – evaluators provide competent performance to stakeholders. Integrity/honesty – evaluators ensure the honesty and integrity of the

entire evaluation process. Respect for people – evaluators respect the security, dignity, and self-worth of the respondents, program participants, clients, and other stakeholders with whom they interact. Respect for general public welfare – evaluators articulate and take into account the diversity of interests and values that they may be related to in the general and public welfare

- ²¹ The fields of Information and Communication Technologies for Development (ICTD) and Library Information Sciences (LIS) have generally operated apart from each other; this collaborative research project has helped to bring researchers from these fields closer together in each country to learn from each other and confirm that they have much common ground in their interest for information, technology, and human development.

- ²² Data-coding grid was developed by Kemly Camacho, Elizabeth Gould, and Rucha Ambikar in collaboration with Ricardo Gomez and TASCHA team at University of Washington.

Section 2

Public Access in a Nutshell: Experiences from Around the World

Chapter 11

Public Access ICT in Argentina

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EXECUTIVE SUMMARY

Argentina is one of 25 countries participating in this international study that was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The study assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes. The study placed an emphasis on public and popular libraries, private information venues (cybercafés and parlors), and social information venues (government and community-associated public information venues). The primary intent was to examine the information needs of underserved communities, public access to information and communication venues, and the role of ICTs in Argentina.

The principal venues that provide public access to information and ICTs formed a key aspect of the study, and the research team conducted literature

reviews, surveys, interviews, and focus groups to gain a thorough understanding of the information and communication landscape. The report describes the access venues selected and studied, the physical infrastructure and equipment, the use dynamics found during the fieldwork process, salient findings, strengths and weaknesses among the public venues, and key recommendations.

The researchers surveyed the processes of communication and knowledge production at the selected venues, as well as the various controlling factors, such as governmental policies, geography, ethnic and idiomatic differences, and social and economic inequities. The research guidelines were structured to identify the inequalities and inequities that affect general living conditions, and identify the role that access to information plays within those conditions. As a result, two types of inequalities were defined: socio-economic inequalities and territorial inequalities. The socio-economic inequalities relate primarily to the external processes affecting individuals and families, including poverty and indigence, income distribution,

employment, the labor situation, gender, ethnic factors, and others. The territorial inequalities are a function of regional and local dynamics, particularly the contrast between urban and rural communities and groups.

The guidelines also led to an examination of the conditions that control information accessibility and an identification of the public's physical access to information. Of primary importance were the 2,186 facilities in the Popular and Public Libraries network. Of that total, 1,995 are popular libraries, and 231 are public and national libraries. The people in Argentina also have public access to information at more than 18,500 private venues, cybercafés, and parlors. Additionally, there are 491 social venues, 99 of which are directly managed by NGOs, and the remaining 302 exist as the result of governmental initiatives implemented mainly in association with community social organizations (SCOs).

In general, the Argentine public places a high value on its capacity to incorporate technology into daily life. An increasing number of people use, or are interested in using, ICT services to fulfill their information and communication needs, although this opinion was more commonly expressed by urban populations. Argentina appeared to the researchers to be an extremely favorable landscape for developing and implementing policies and strategies to increase the public access to information, and to the create and disseminate content with both local and national interest.

INTRODUCTION

Country Overview

Argentina is one of the most advanced and progressive nations in South America, with a stable and well-recognized presence in the world community. The economic position is based on a solid foundation of agricultural, industrial, commercial, and natural resource interests.

The citizens enjoy a relatively high standard of living compared to other Latin American countries, and much of the population considers itself middle class. The country has a high human development index score of 0.869, but according to data developed in 2007, 23% of the population lives below the official poverty line, and income distribution has become quite unequal as a result of the 2001 national economic crisis. The educational level is relatively good, especially in urban areas with ready access to public schools and universities. The Argentine literacy rate reportedly is 99%.

The population is composed of a wide range of ethnicities, races, and origins. People who are predominantly of European descent make up the majority of the population, with estimates ranging from 89.7% to 97% of the total. The last national census, based on self-ascription, indicated a similar figure, in that only 2% declared themselves to be Amerindian of first-generation Mestizo background. The most common ethnic groups are Italian and Spanish descendants.

Eighty percent of the Argentine population resides in cities or towns of more than two thousand inhabitants, and over one-third of those people live in the Greater Buenos Aires area (the Autonomous City of Buenos Aires and Conurbano Buenos Aires). With 11.5 million inhabitants, this sprawling metropolis serves as the focus for national life while the rest of the population is unequally distributed across the rest of the country. With a third of the population in the Greater Buenos Aires region, the city ranks tenth among the 23 largest cities in the world, and the third largest in Latin America, after Mexico City and Sao Paulo. An additional 1.1 million people live in the metropolitan area of Rosario, and 1.3 million in the city of Córdoba.

The Province of Buenos Aires is the most heavily populated province in Argentina, with 13,827,203 inhabitants. A nearly equal number of people live in the neighboring provinces, and Córdoba and Santa Fe have populations of about three million. In total, 60% of the population is

concentrated in three provinces (Buenos Aires, Cordoba, and Santa Fe) and in the City of Buenos Aires. These areas have a combined surface area that is less than 22% of the country's total.

According to a 2001 census, Argentina had a population of 36,260,130 million, with 1,527,320, or 4.2% of which, were born in other countries. The national growth rate in 2008 was estimated to be 0.917% annually, with a rate of 16.32 live births per 1,000 inhabitants and a rate of 7.54 deaths per 1,000 inhabitants. The Argentine population has long had one of Latin America's lowest growth rates (typically about one percent a year), and a comparatively low infant mortality rate. The median age is approximately 29 years and life expectancy at birth is 75 years.

The proportion of people under 15 years of age (24.6%) is a slightly below the world average (28%), but the proportion of people 65 years of age and older is relatively high at 10.8%. The high percentage of older people in Argentina has long been second only to Uruguay in Latin America, and is well above the world average of 7%.

The overall density of telecommunications among the general population of Argentina stands at 24%; but this number is somewhat deceptive and does not reflect regional differences. The density in the city of Buenos Aires is 60%. The three principal provincial capitals: Cordoba, Rosario, and Mendoza, each register about 35%. Seventy five percent of the nation's population lives in these communities. The regions with the highest income levels have telecommunications densities of 28% or more, while the poorest regions are below 10%. The Formosa and Santiago del Estero provinces have only 7%.

The landline density distribution nationally is 24%. From 2000 to 2006, Argentina saw an increase in the number of Internet users from 2.4 million to 13 million. Between 2003 and 2006, the average yearly growth was more than 30%. An estimated 34% of the total population claims to be part-time or frequent users of information technologies and tools.

Geography

Argentina is located at the southern extent of South America between the Andes Mountains to the west and the southern Atlantic Ocean to the east. It is bordered by Paraguay and Bolivia to the north, Brazil and Uruguay to the northeast, and Chile to the west. Argentina is the second largest country in South America after Brazil and is the eighth largest country in the world. The total surface area spans approximately 2.7 million km², but the figure does not include Argentine Antarctica and several South Atlantic islands. Geographically, the country is divided among six regions: the Northwest region (Jujuy, Salta, Tucumán, Catamarca, and La Rioja), the Gran Chaco or Northeast (Formosa, Chaco, and Santiago del Estero), the Mesopotamia (Misiones, Entre Ríos, and Corrientes), Cuyo (San Juan, Mendoza, and San Luis), the Pampas (Córdoba, Santa Fe, La Pampa, and Buenos Aires), and Patagonia (Rio Negro, Neuquén, Chubut, Santa Cruz, and Tierra del Fuego).

Government

Argentina is a presidential representative democratic republic in which the president is the head of state and also heads the multiform party system of government. President Cristina Fernandez de Kirchner was elected to a four-year term in 2007.

Legislative power is vested in the bicameral National Congress, or Congreso de la Nación, consisting of a Senate (Senado) of seventy two seats, and a Chamber of Deputies (Cámara de Diputados) of 257 members. The Supreme Court of Justice heads the judicial branch.

METHODOLOGY

Team Qualifications

The research team for this study was composed of three members. The team leader was Professor Adrián Rozengardt, a master's degree candidate majoring in the conception and management of public policies and programs, Facultad Latinoamericana de Ciencias Sociales (FLACSO), Argentina. He is a recognized expert in planning, designing, assessing, and monitoring social projects, with a specific focus on childhood and adolescence. He is a consultant and researcher on the relationship between public policies and ICTs and has served as a consultant for an assortment of national and international organizations. Professor Rozengardt is Vice President of the Civil Association for the Development of Information Society LINKS.

Dr. Susana Finkelievich was the associate researcher and was trained as an architect at the National University of Rosario and later attended postgraduate studies in urban and regional planning at the Polytechnic University of Stettin, Poland. She holds a master's degree in urbanism (Université Paris VIII) and a Ph.D. in social sciences (Ecole des Hautes Etudes en Sciences Sociales, Paris, France). She is a senior researcher in the National Council of Scientific and Technological Research (CONICET) on Information Society and is a Coordinator of the Research Program on Information Society, Instituto de Investigaciones Gino Germani, Faculty of Social Sciences, University of Buenos Aires. Additionally, she is the National Contact Point in Social Sciences, Humanities, and Economy for Scientific Cooperation with the European Union. Dr. Finkelievich is the President of LINKS, the Civil Association for the Development of Information Society.

The research assistant, Daniel Finkelievich, is a member of LINKS.

LITERATURE REVIEW

The research team examined nearly 40 published papers on ICT access and 37 documents published in the public, private, and associative sectors. They also reviewed surveys and statistics that described Argentina's population, the social and economic landscape in the country, the communications facilities, public information venues, and other factors. This overall review involved surveys, interviews with key stakeholders and users, and the data obtained in four focus groups.

VENUE SELECTION

The research team focused its attention on the venues and institutions that facilitate public access to information and communication with a special emphasis on the needs of communities, public access to local information and communication, and the role of ICTs in these areas. They based the research on in-depth analyses of social imbalances and inequities, and on the resulting impact on access to information. They also analyzed the information needs of diverse social groups, the contribution that information can make to everyday life, and the conditions of Argentina's public information venues, as well as their history and their future perspectives.

The team studied the physical infrastructure and equipment, the human resources in a variety of these venues, and the available content and information. They also surveyed the communication and knowledge production processes at these venues within the context of the applicable governmental policies, geography, ethnic and idiomatic differences, and other corresponding elements.

As a result, the following venues were identified for detailed study: (1) popular and public libraries, (2) public access venues with commercial

objectives, such as cybercafés, private parlors, and telephone cooperatives, and (3) public access venues with social objectives, such as governmental and non-governmental organization venues.

INEQUITY VARIABLES

Foremost among the inequity variables that affect public access to information in Argentina are income, education, age, gender, geographical location, social involvement and strata, and employment. Documentation from 2003 stated that 54% of the population lived in poverty and that 27.7% of the population were indigents. However, a subsequent report in 2007 claimed that those figures had been reduced to 23.4% and 8.2%, respectively.

The inequity problem lies not only in the quantitative extension of poverty, but also in its qualitative depth. Poor and indigent households have lower average incomes than the respective definitive lines. Moreover, new forms of poverty have arisen and have spread because of the cumulative effects of increased unemployment and underemployment, reduced income, and the increased number of precarious unstable jobs that lack social benefits.

Although in the past few years there has been an important reduction in the poverty and indigence levels with respect to the very low figures reported in 2002, the living conditions have not returned to the far more favorable levels seen in 1974. The unequal distribution characteristics of the present model have remained relatively constant, and more than 52% of the total wealth in the country is held by 20% of the population.

The gap between the income of the richest 10% and the poorest 10% of the population has continued to expand over the past thirty years. Between 1974 and 1991, this differential rose from 9.5 times to 19.5 times, and reached a maximum of 42 times in 2002. At the beginning of 2004, the richest 10% had an income 28 times greater

than the poorest 10%. More recent data indicate that this number had risen to 32 by mid-2004. By the end of 2006, the richest 10% owned 36.4% of the total generated income, whereas the poorest 10% had only 1.3% of the total generated income.

In Argentina, the greatest educational inequities are related to socio-economic factors. Gender and geographical location differences, while important, are less relevant. Education at all levels is free in Argentina, but depending on their social and economic circumstances, students face unequal conditions regarding access to schools, stability, results, and graduation.

Since the mid-1980s, the Argentine educational system has enjoyed a widespread expansion, which facilitated an almost universal access to basic education, but the educational level reached by the students in the lowest income groups is quite different from the level reached by higher-income students. Low-income students commonly drop out of school after a few years; consequently, their educational level severely limits their access to significant opportunities in the job market or to an income that will provide a comfortable living.

In 2001, more than 3,587,620 people (9.9% of the total population) were over the age of 65 years, while 28.3% of the population was under the age of 14. At the same time, the average life expectancy was 73.8 years. Seventy percent of that 65-year-old group is retired, while another 15.6% continued to maintain an income-producing activity. Men outnumber women in the work force by about three to one. About eight out of ten senior adults have medical coverage, and 6.2% are illiterate.

Age is a particularly important concern regarding the access and use of information venues and technologies. Younger people, particularly those between 16 and 35 years of age, are the most frequent users of ICTs, while the level of use diminishes radically among people over 65.

Gender inequalities become quite apparent when women attempt to enter the labor market, and according to one accepted set of survey results, only three out of ten “formal” jobs are occupied by

women. It also claimed that employers indicated that a vacancy was available to a female candidate only 28.3% of the time. According to the Homes Permanent Survey, female unemployment is twice as great as male unemployment.

In Buenos Aires, the jobs held by women pay 32% less than corresponding jobs held by men. The economic and social status of women is said to be registering important improvements, and President, Dr. Cristina Fernandez de Kirchner, is used as the most highly visible example of the increasing presence of women in the public sphere. Other often-cited examples of the increasing improvements are the advances in opportunities appearing in the education sector, as well as the promulgation of laws that protect the rights of women. Nevertheless, these heralded advances and improvements are relative when viewed in light of the more permanent inequities in the economic and political context. Still, surveys show that gender is not nearly as relevant as age and venue location regarding information access. Women and men use public information venues on an almost equivalent basis.

Location of a venue has severe impact on information access. In recent years, Argentina has accentuated its internal differences. For example, more than 75 percent of the capital investment in agriculture and industry is concentrated in the central regions (the Buenos Aires metropolitan area and the Pampean region) along with the highest concentration of workers and the highest concentration of the scientific and technological capacity. The peripheral regions experience an ongoing decline in self-sufficiency and a corresponding increase in the level of dependence on the wealthier regions.

Historically, the development of the Argentina has depended heavily on the country's economy and trade in the international markets. The result is an unbalanced domestic territory, with a strong demographic concentration in a few urban areas, particularly the Buenos Aires metropolitan area,

and with large unpopulated or abandoned areas in many provinces and regions, particularly in the northwest areas. In the large urban agglomerations, mainly in Buenos Aires, Rosario, Córdoba, La Plata, Mendoza, and Tucumán, there are large areas of concentrated poverty.

DATA COLLECTION

The conclusions drawn from the findings of this study are based on the information collected from the literature review, the users and stakeholders who were interviewed, websites, and a host of primary and secondary data sources. The veracity of the results is reinforced by the comparison to data taken from the diverse sources.

The research team visited more than 100 websites and portals and interviewed 28 key participants, including government officials, ICT enterprise executives and operators, NGO staff members, and knowledgeable research experts. Data were collected in public libraries from 61 public library managers and on 750 surveys.

The research team visited public access venues all across the country to conduct a survey of Internet users. They surveyed 553 individuals, of whom 24% access the Internet at public access venues that have commercial objectives. The survey was determined to have a reliability of 95.5%, with an error margin of +/- 4.5%. The methodology used was keyed to a telephone survey using a semi-structured questionnaire and with open and closed questions. For the public access venues with social objectives, the data were collected through interviews, literature reviews, and four focus groups.

OVERALL COUNTRY ASSESSMENT

Public Access to Information

From 2000 to 2006, the number of Argentina's Internet users increased from 2.4 million to 13 million. Between 2003 and 2006, the average yearly growth exceeded 30%. The results of this current study show that at least 34% of the population uses information and ICT tools to some degree.

The profile of the typical Internet user has changed. Initially, the profile described a relatively elite user having at least a partial university education, a high level of information knowledge and application, a high income, and was usually male. The most notable changes in that profile are seen in the very great increase in the number of users from the low and medium socio-economic levels; that shift began to be noticed as early as 2000 and 2001. Moreover, the average educational level of the users decreases yearly, including people who have only a primary or secondary education.

The ratio between male and female Internet users reached 50% many years ago. Furthermore, in the past several years, the ages of the typical Internet users also changed significantly. More than 24% of the present Internet users are under 18 years old. Since 2003, the age of the average user has increased to about 29 years old. Interestingly, there has been an increase in the number of users who have a low level of technological knowledge and who frequent cybercafés, parlors, public libraries, and other public information venues.

Several factors in recent years have helped to increase the interest level and greater use of ICTs and services by this more diverse user base. It owes much to the cybercafés, in which each computer can be used by many people each day and used during the more favorable operating hours for seven days a week. Additionally, since the 2002, many users accessed the Internet encouraged by the so-called "home free-access," which allowed users to pay for the Internet time they consumed

without having to pay a fixed fee. A third factor has been the increase in broadband use in homes that began between 2005 and 2006.

Broadband service in Argentina went from 125,000 clients in 2002 to 475,000 in 2004 to 880,000 in 2005. At the end of 2006, there were 1,590,000 subscribers in homes and commercial enterprises. This growth has been attributed largely to public acceptance and to the calculated business strategies of the service providers to attract clients through promotions and price reductions. The strategies also were positioned to promote future bundled service that would combine broadband service with telephone landlines, Internet connectivity, television, and cellular phone services.

There has been a corresponding increase in the sales of personal computers. The density level of personal computers nearly doubled from 3.8 million in 2002 to 6 million in 2006. By December 2007, the number had grown to more than 7 million. In early 2008, the Microsoft Corporation determined that 11% of all homes in Argentina had two personal computers and estimated that the number would increase to 20% by the end of 2008.¹

The growth in computer notebook ownership and use was remarkable and accounted for 15 percent of all computer sales. That number is also projected to increase further with the very rapid increase in wi-fi sites and connectivity. Access to the Internet through cell phones, even though still limited, promises to increase as new applications and the new PDA terminals (cell phone + agenda + GPS, photo camera, etc.) become available. By the end of 2006, there were 24 million mobile lines in Argentina, and increased to 27 million in December 2007.

The enormous increase in the capacities of the newer cell phones points to increased access to the Internet. This type of growth in technological advancements and accessibility has evolved in Argentina despite the lack of a coordinated and comprehensive government strategy. This defi-

ciency is widely believed to have been a legacy of the 1989 privatizations. In Argentina, technological innovation and dissemination originate almost exclusively in the strategies of the private sector.

ACCESS, CAPACITY, ENVIRONMENT, INEQUITY

The overall information and communication environment in Argentina is unsettled at best, and the issues that beset the individual information and communication venues are widespread and complex. There is a huge gap separating the diverse socio-economic groups, and that gap is particularly visible between the populations of the City of Buenos Aires, for example, and its metropolitan area, as well as in the populations in the rest of the provinces. According a 2008 Gallup survey, cellular telephony is an exception to these socio-economic inequities. That survey indicated that a large proportion of individuals in the low-income sector, and many people living in the outlying provinces, all had cell phones. The penetration of cell phone use (at 58%) and television (at 58%) are considered by the public to be the most useful of the available technologies, while Internet access was ranked at only 7%.

The same 2008 Gallup survey indicated that most of the Argentine population knows how to use a remote control handset, originate and receive telephone calls, send and receive messages using cell phones, and how to use a DVD. The survey also showed that most of the population said that they do not know how to use a film camera, an MP3 player, how to send e-mails, or program a VCR.

Three out of every ten Argentines access the Internet every thirty days, but in 2000, only one out of ten accessed the Internet. In 2007 and 2008, the amount of online time per user increased significantly. Half of all Internet users connect through public access venues, a third access from their homes, and a fourth access from their workplace.

Because the use of ICTs depends largely on experience, the users develop their technological capacities as they use the available technologies. Most ICT users are self-trained, and the role of public information venues to increase user skills and foster experimentation with ICTs is invaluable.

Information Needs of Underserved Communities

The most critical information needed by underserved communities concerns the availability of public and private social services that provide health, employment, housing, education, citizen rights, security, and safety assistance. An essential aspect of resolving these needs lies in developing a better and more accessible set of government services at national, regional, and local levels delivered through ICTs to complement the recently introduced E-Democracy, E-Participation, and E-Procurement. User-centered E-Government suggests that the government will initiate and provide services and resources tailored to the actual service and resource needs of the broad range of users, including the general population, government employees, and others. These government-supported services would also mandate the need to provide public information through public access venues.

Little has been done to meet the needs of elderly, disadvantaged, and impaired people, including those with physical, mental, visual, or hearing deficiencies. These people are especially underserved and urgently need specific information programs so that they can take advantage of the potential of ICTs to help them to become more fully integrated into the community. In this respect, it is essential to develop products, systems, and services with the necessary support for these needs, and to equip information venues to accommodate these needs.

Economic, Policy, and Regulatory Environment

Most sources in Argentina indicate that the market share linked to ICTs stands at US\$9.5 million. The ICT market between 2003 and 2007 employed 283,000 people, or 1.9% of the active population. The 2002-2007 period saw a strong increase in the small & medium enterprise and home markets.

One analysis reviewed by the research team predicts an even greater growth in the government and public administration sectors well into 2010. During 2007, that sector recorded an annual growth of 20%, with an estimated invoicing of 34,600 million AR pesos. In the period from 2006 through 2008, the ICT sector consistently grew at a rate in excess of Argentina's IGP, which stood at 9% in that period. One third of those 34,600 million AR pesos came via ICTs, including software, hardware, and services. The remaining two-thirds of the money was related to communications equipment and infrastructure and for landline and cellular telephony and the Internet. Some technologies had what several local respondents termed "a very special behavior," and cited the Internet, mobile telephony, personal computer sales (particularly notebooks), information services, and software development, as the most active drivers of this technological growth. These respondents universally predicted a continued rapid growth well into the future. Argentina's IT and communications chamber CICOMRA and other analysts estimated that by the end 2007, 16 to 17 million individuals had directly or indirectly used the Internet at least on a periodic basis.

The role of broadband service is growing in importance, and already in 2008 there were two million subscribers, while as late as 2006, there were only 475,000. However, the research team concluded that this 20% yearly growth could not be sustained without continued large investments, or without the specialized human resources with the skills to support that rate of growth. According to a 2007 study by Prince & Cooke, there were

160,000 people employed in ICT-based enterprises. But if that number is added to the number of people working in other sectors, both public and private, who also use ICT tools, the total reaches 310,000. That figure accounts for nearly 2% of the Argentina's entire economically active population. The sector is projected to require around 370,000 individuals in 2009, of which huge numbers have not been adequately trained.

Collaboration Practices that Already Exist Across Venues, and Future Opportunities

In Argentina, there is an active inter-library network in place, and the national and private universities have launched remarkable information initiatives. Two of the most important networks are the network UNIRED, which was created in Argentina in 1989 by a group of professionals interested in sharing information, and the civil association RECIARIA, a project of Argentine Networks that hosts a combination of 27 separate information networks across the country and covers a wide spectrum of disciplines.

The popular libraries integrate a network mechanism supported and encouraged by the national government through the National Commission for the Protection of Libraries (CONABIP). The Information Society Program has implemented Intranet connectivity in community technological centers (CTCs). This initiative was established in what the founders have termed a "horizontal participation spirit," and works as a virtual meeting point for the CTC coordinators. It also serves as an information access tool that allows CTC management to communicate with the PSI, as well as among themselves. The Intranet works as a portal to display news, events, and messaging, and aids content management. Additionally, it is a platform for training people in distant locations, for exchanging experiences, and serving as an information reservoir to be shared by all the CTCs.

Argentina participates in the Red CLARA, the Latin American Cooperation in Advanced Networks, Cooperación Latinoamericana de Redes Avanzadas, and in the RETINA, which is the Academia REd TeleINformática. RETINA was created to facilitate ICT access among scientific researchers and has provided communications for the academic sector since 1990.

The study team examined Argentina's social venues and found a broad institutional model focused on social development and the empowerment of community groups, the development of social capital, and the struggle against poverty. This definition of the model is supported both by the venues' internal networks and their work within their local communities. This observation was supported by venue website materials and information, as well as by information provided in interviews. Proposals obtained from civil society organizations commonly include the development of the "network concept," both as a key value and a work methodology.

There are numerous network and collaboration forums, such as Somos@telecentros and Tau Node, and the various government projects also are strongly marked by a network methodology. The CTCs and other Access Centers, and the MiPC (My PC) program work together in networks and are defined as networks in their foundation documents. However, the results to date are uncertain, and in many cases, the original project's justifications have not exhibited concrete results.

The commercial venues do not operate in networks, and cybercafés are not even grouped in any form of association or federation. Furthermore, there are no established collaboration or integration mechanisms among these diverse venues. When even a collaboration mechanism had been found within a venue's universe, it was seldom effective, except when the CONABIP took direct action.

There is no apparent collaboration between the public and the private sectors with respect to the use of venues, nor is there any association between commercial venues and social venues. Frequently, NGOs install their own venues and buy technology, while there are already alternatives existing in the same community.

The researchers were unable to identify any best-practice data banks; however, they did identify the following two possible collaboration opportunities:

- Government/commercial venue partnerships in which the government, at the national, provincial, and local levels, could establish agreements using cybercafés, parlors, and other venues and infrastructure to subsidize an Internet-user card for low-income users. This would relieve any burden on the government of building costly new venues whose activities would not differ much from the activities at the commercial venues.
- University/public venues in which universities could provide local content for public venues, as well as train the users to create and upload their own content.

Buzz Factor

Cybercafés and parlors are very popular gathering places for young people where they socialize, meet "virtual" friends, and share study and recreational activities. Older users do not view information venues as social contact points; rather they use these venues as a public utility.

In contrast, public and popular libraries integrate community activities into their agendas and have increased their user base by hosting literary, artistic, and community activities. These activities could be further extended to include the creation of local content to be uploaded to the Internet.

Legitimate Use

The determination of legitimate use of ICTs was considered from two diverse perspectives. The first perspective is related to an individual user's interests, skills, and needs, and from that viewpoint, it is difficult to define what is legitimate or not, because defining legitimate use could be interpreted as an imposition on individual freedom and on a person's right to free expression. However, the research team observed certain sets of norms concerning venue schedules and timetables, and the measures that serve to protect viewers from pornography, violence, prostitution, and pedophilia.

The second perspective is related to the criteria that guide a particular venue, institution, or organization offering information access. Some people perceive libraries to have too much oversight with regards to what constitutes legitimate and significant searches for literary information, art, culture, news, and information to be used at schools and universities. Social organizations and institutions seem to consider it legitimate and important to use information related to their social goals, such as training, strengthening social networks, and accessing e-government and public information. Commercial venues, however, apparently do not attempt to impose ethical or moral limits on their users; these venues offer the most open access to information.

Shifting Media Landscape

In Argentina, as in many Latin American countries, the arrival of new and advanced technologies, such as global positioning systems, mobile phones, mobile Internet access, and other ICTs, are finding widespread and rapid acceptance. In August 2008, iPhone 3G suppliers recorded more than 60,000 purchase reservations, even before the device became available in Argentina. However, none of the venues, agencies, and governing bodies analyzed during this study had any innovative new initia-

tives or processes in place to make information access more openly available to users who might want to take advantage of these newly installed technological innovations. Educators tend to promote the use of laptop computers for educational purposes, and in one highly publicized example, the government of San Luis Province distributed 3,000 ASSUS laptop computers among school children as a pilot project.

VENUE ASSESSMENT

Overall Venue Landscape Assessment

Public libraries are specifically conceived and sustained venues designed to provide public access to information. The first public libraries in Argentina were established in the 19th century, and from that time until the present libraries have been an important part of public service. Their bonds with government and society have undergone many changes and reflect the diverse political and social changes that Argentina has undergone. The expansion of the library system has paralleled the growth of the large cities and mirrored the various turbulent institutional, political, and economic changes the Argentinean people have experienced in the past one hundred years.

In Argentina, public libraries are established by government agencies or public institutions. These libraries stand apart from another group of very important facilities called popular public libraries, which are autonomous civil associations created through the cooperative efforts of a town, a community, a neighborhood, or individuals.

There are also certain specialized libraries that offer access only to a select group of users, such as faculty members, students, and researchers at schools and universities. These specialized libraries may have a public origin, and their services may be free or may require an access fee.

For the purposes of this study, only the defined popular and public libraries were considered, and of all of the 4,688 registered libraries in Argentina, the study gave particular attention to the 2,186 public libraries, or 42% of the total number.

In public access venues that have commercial objectives, the research team included the private venues that allow public access. That category included cybercafés that are individual small-capital enterprises, as well as the private parlors established by the main telephone service providers – Telefónica de Argentina, Telecom Argentina, and IPlan.

The typical cybercafé is a commercial enterprise or franchise, and is a venue in which users have access to the Internet by paying a fee for a set period of time, most commonly by the hour or minute. In Argentina, cybercafés concentrate on the large number of people who seek access to the Internet, and in 2006, 34.3% of Internet users used cybercafés as their primary point of connection. As this study was being conducted, there were 18,500 cybercafés throughout Argentina, and 50% to 60% of those were located in the greater Buenos Aires metropolitan area. Private venues with Internet connectivity are available to 5.5 million Argentineans who represent a very diverse group of people from across a wide range of socio-economic sectors. Among young people, these venues constitute a whole new way to socialize, both in person at the venues and through the Internet. An estimated 200,000 computers are available in cybercafés offering digital ICT services.

The consensus of the research team about the value to the public offered through social-minded venues is positive. This response is important for significantly increasing the number of these types of venues, but it would be equally important for these venues to avoid following any common operational paradigm. The diverse institutions that implement social-minded venues operate independently of one another and do not use social networks as a part of the diverse operational

models in these venues. The absence of social and unifying networks has the potential to lead to a waste of social capital.

The institutional model of a social-minded venue focuses on social development and the empowerment of community groups, the development of social capital, and the struggle against poverty. This institutional model in the venues is particularly heterogeneous regarding its origins, goals, practices, working conditions, target population, funding sources, institutional development, impacts, and monitoring and assessment models. Consequently, any attempt of classify these information venues in precise definitions carries a methodological risk.

At least four Argentine national governmental organizations are conducting initiatives regarding public information venues: (1) the Information Society Program of the National Secretariat of Communication, (2) the National Ministry of Economy, (3) the National Ministry of Social Development, and (4) the Federal Investment Council. The Provinces of San Luis and San Juan, and the city of Rosario, also are implementing socially oriented public venues. Collectively, the four organizations have established more than 300 venues. Unfortunately, there is no apparent mechanism in place to coordinate them.

There are few social and community organizations and NGOs that have developed initiatives regarding information venues independently from the government agencies, although the research for this study identified 99 such venues supported entirely by NGOs.

Access, Capacity, and Environment for Venues

Unlike some other information access systems in Argentina, public libraries are located throughout the country to cover both rural and urban areas, and are equally distributed between city centers and urban peripheries; however, 92% of the total

number of libraries in the system are located in urban areas and only 8% are in rural areas.

Popular libraries have a rather comparable distribution, with 88% in urban areas, and 12% in rural areas. As mentioned, there are a small number of additional libraries that are not part of the national or public library systems, but which are open to the public, all of them are in urban areas.

Public libraries are perceived in their respective communities as specific sources of information, culture, and learning, and, consequently, they are sources of relevant institutional and social capital. Libraries in Argentina usually have adequate physical infrastructure, although some of them have better buildings, equipment, and maintenance than others, depending on the institutional and economic support they receive. Nearly all of the libraries have computers, but only 60% have Internet access, and while nearly all have a large supply of printed materials, they offer limited digital resources. Libraries offer free access to the public, but only a few provide special accommodations for people with impairments or offer content in local languages.

In general, the cybercafés and parlors offer unrestricted physical access, appropriate technology, and affordability. Most are within easy reach of the general population, because of the widespread distribution in urban and semi-rural areas. The technologies, services, and information provided by cybercafés are available to all socio-economic groups. The service fees are quite affordable and cost an average of US\$0.50 per hour, and the average user spends a weekly average of US\$5.26.

Government-sponsored initiatives regarding social information venues are fragmentary, have displayed little continuity through the successive administrative changes, and were not well able to respond to the changes and plans stemming from the various governing organizations and institutions. The numerous and diverse governmental initiatives have been developed in parallel and in uncoordinated ways. While 84.5% of these venues are distributed in urban areas and 15.5% are in

rural areas, most of the venues in the urban areas are located in the low-income areas. Almost half of the venues are distributed in the northwest and the northeast in the country's most underserved regions.

Revenue Streams for Publicly Funded Venues

CONABIP manages the Special Fund for Popular Libraries as prescribed by Law 23.351. The fund is financed largely by 5% of the money collected as Emergency Taxes for prizes paid at lotteries and raffles. Beginning in 2004, supplementary contributions were added as extraordinary funds to reinforce the CONABIP Libraries and Operational Plan. These added special funds are included in the National Treasure Budget, and common collection funds and National Treasure contributions provided 20 million AR pesos (US\$ 6.5 million) for the 2008 fiscal year. Popular Library associates contribute approximately seven million AR pesos each year.

The research team was unable to collect any accurate funding data for the public library system. The commercial venues are entirely self-supporting and do not receive public funds. Information venues established by the government rely on National Treasure funds, subsidies from international organizations (PNUD, BID, World Bank, etc.), or private sources, such as the Microsoft Corporation.

CASE EXAMPLES

State-Implemented Venues: "Cyber AUIS"

The Argentine Province of San Luis launched an ambitious digital project in 2004 to position San Luis province as a world-class source of software and information services. One of the initiatives designed to facilitate ICT access to the population

was the creation of Cyber AUIS, 90 access centers and one mobile center distributed among San Luis' 62 urban and semi-urban settlements. This huge project was developed by La Punta University (Universidad de La Punta, ULP), which aimed at fully using the digital project initiated by the San Luis provincial government. Coordinated and managed by local community organizations (schools, NGOs, local clubs, and others), Cyber AUIS centers are equipped with three personal computers each of which is connected to the Internet through wireless access or satellite connectivity. Each center also has a printer, scanner, web cam, and telephone. The centers are financed entirely by the Province of San Luis.

The relationship between the users and the San Luis provincial government is aimed at (1) improving the service standards in health, education, and security, (2) granting geographic equity, (3) enabling access of government services to the public, (4) developing technological skills using ICT tools provided by the centers, and (5) disseminating information and knowledge among the population.

Through Ciber AUIS, the people of the province can access a variety of service and information sources, such as the San Luis Portal, the Integrated Health System, the Integrated Security System, the Digital Civil Registry, the Integrated Educational System, online bids and purchases, the survey and assessment system, employment opportunities, and the Internet. They can also pay bills electronically.

Since the Integrated Health System was implemented, citizens can book health and medical appointments at hospitals and clinics through the Internet. The only requirement for the users is that they need to access the www.e-sanluis.net website and have an e-mail address registered at the same site that provides an e-mail account with a capacity of five megabytes.

Library Venues

The Popular Library "Clemente J. Andrada" was established in Santa Rosa in the Province of La Pampa and specializes in training teachers. The user base is composed of persons from all educational levels, university graduates, and the general public. The library has a special service for the visually impaired. In Argentina, a large proportion of people with impairments also are poor, and it is common for the visually impaired to own their own computers when they can afford one. This is one reason why the library administrators believe it is important for the popular libraries to be equipped with an organized technological and organizational system – to deliver the widest range and the best types of services to the largest possible audience.

When Tiflotechnologies (the adaptation and accessibility of ICTs for use by the blind and the visually impaired) was made available, the Popular Library staff launched a series of actions to publicize the presence of this new technology. The first joint project between the School for the Blind and the Popular Library, entitled "A Library for ALL," had the specific objective to make the new technologies readily available to the blind and the visually impaired. The library staff then launched other similar projects, such as the User Training Program, in which the library and the School for the Blind work jointly through two approaches. The School for the Blind worked on orientation and mobility initiatives in the urban environment, while the library taught the use of Tiflotechnologies.

During the educational year, the library organizes information access workshops and teaches interested users how to work in ICTs. The teaching staff helps the participants learn how to use computers, scanners, Braille and standard printers, electronic mail, and the Internet.

In 2006, the Library proposed including young people with visual impairments in this program, within the framework of the National Program

“INCLUSION” and Labor Formation for Young People. The provincial and national governmental agencies accepted the proposal. Subsequently, 25 young people became qualified in advanced handling of personal computers, marketing, and developing projects, notes, reports, and Braille applications. Among the 25, 12 were blind and 5 were visually impaired.

The participating libraries provide a variety of appropriate services that include printing in Braille when a user asks for printed material, providing recordings on tape cassettes prepared by volunteer readers, and loaning library shelf materials. The blind and visually impaired library users also have access to computers with JAWS software, a Galileo scanner, Braille printers, standard printers, and the Internet.

The Popular Library has had great success in this comprehensive initiative to serve and to improve the lives of the blind and visually impaired. Through ICTs, the users have open access to the collections and services of the library. The librarians hope that in the near future their experience will contribute to the implementation of a National System of Popular Libraries with Special Areas for the Blind, in which each Popular Library will champion the social benefits among all users.

Cybercafe LUNA, Neighborhood Ejército de los Andes (Fuerte Apache), Prov. De Buenos Aires

There are areas in all of Argentina’s cities where social vulnerability and deep poverty exist. One such area is the Barrio Ejército de los Andes, far more commonly known as Fuerte Apache (Fort Apache), because of its ongoing state of social violence, insecurity, institutional and police abuses, delinquency, and drug traffic. The Fort Apache district is located at the western limits of Greater Buenos Aires and is home to more than 35,000 people. More than 20% of the neighborhood population is unemployed and devoid of any kind of social assistance, and almost 10% of

the inhabitants are between 15 and 19 years old. Some social studies have estimated that 20% of the children under 14 years old will die before reaching their 19th birthday because of drug abuse or violence.

Both cable service providers and the Internet providers refuse to enter Fort Apache to connect their services, even though the area is seen to be a strong potential consumption niche. Other low-income neighborhoods face the same situation, and in a few cases, neighbors have organized themselves to present discrimination complaints to the Office of the People’s Ombudsman. However, in Fort Apache, the lack of cable TV was solved through an inventive strategy. One neighborhood resident obtained a license from a cable operator and distributes the cable service in the district. Each subscriber pays approximately US\$12 per month for the service that includes codified channels with Sunday soccer games. The result is an excellent example of self-sufficiency without intermediaries.

The Cybercafé Luna is one of the few cybercafés in Rubén Riquelme’s neighborhood. Riquelme is the founder and owner of the venue and claimed that the Internet outplays television. He also claimed that about 100 young people form the main user base for his cybercafé. Riquelme said, “If you send them to learn informatics, they’ll never go. But, they come here, and they learn, all right. They learn by themselves, or they help each other. Everything that exists is in the Internet.”

In the Cybercafé Luna, with its deep blue walls, it’s always night. A couple of skulls hang from the ceiling. A moon shines on one of the walls. Riquelme said that because the average age of his users is below 12 years, “It looks like a kindergarten. But, instead of crayons, kids play with ‘mice,’ keyboards, and monitors. No children songs, either.” The loudspeakers blare cumbias.

Comparative View of All Important Venues

The research team concluded that the principal value of the venues with social goals is the capacity to create the social appreciation and effective use of ICTs. The challenge with ICTs is not just to provide passive access to the technology, but also to make available the means by which individuals in their own communities can find ways to make effective use of these technologies.

Most of these initiatives encourage the creation of local content that can benefit the everyday needs of the people and their communities by applying the social benefits derived from using ICTs. However, many of these venues have a weak institutional structure, their budgets are limited, often discontinuous, and lack the human resources needed to adequately serve the number of people who use the venues. Additionally, most of the staff members are volunteers, and have a low level of technological and managerial training.

The overall economic position among the commercial venues is quite positive. The main value of these venues that have commercial goals is their capacity to generate the social appreciation of ICTs, and to ensure effective technological use at an extremely low cost. Because they are self-supporting, they do not depend on subsidies. Nevertheless, the venues do little to encourage the creation of local content or provide information related to support everyday needs, or to significantly increase the social appreciation of technology. Even if the venues in general are physically accessible, cybercafés and parlors do not follow any recognized initiatives to reduce the level of social inequities in their respective communities.

SUCCESS FACTORS AND RECOMMENDATIONS

The impact of information and communication technologies on Argentina's society and the economy has been widespread and important. Digital technologies have empowered thousands of Argentina's people and significantly helped socially and geographically marginalized groups. As a result, the overall population of the country has greater and better access to public services and equal access to information. ICTs complement the performance and value of other technologies and the collective result enhances the quality of life. In Argentina, many previously underserved and disadvantaged communities, groups, and individuals have progressed from not having telephones to learning how to use ICTs and access wi-fi communications.

The 2008 Gallup survey reveals that nearly six out of ten Argentines state that ICTs imply better and wider communications, an improved quality of life, and access to better employment possibilities. The positive opinions expressed in the survey affirm that ICTs allow more free time (42%), more family time (39%), and better control over their lives (37%).

The use of cellular telephony to investigate e-government initiatives, to gain access to public and private social services, and to encourage people to apply the available technologies remains a vast untapped opportunity in Argentina.

Additional funds, people, time, knowledge, and related resources could be best used to strengthen public access to information and communication venues and practices. This improvement to resources applies especially to (1) establishing collaborative partnerships between the public, private, and associative sectors concerning public information venues, (2) expanding wi-fi access, (3) facilitating the purchase of inexpensive computers through increased credit systems, (4) implementing information venues through partnerships

among the diverse sectors in communities having more than 50 inhabitants, and (5) including community social activities (classes, training, recreation, etc.) in the public information venues to make them socially attractive community centers.

Success Factors

The research team identified success factors that would improve the various venues through digital ICTs, which in turn, would help meet the public's information needs in general, especially in underserved communities and remote areas. The most important of these success factors is to improve and extend the services of the public and popular libraries to:

- Ensure their strong integration into communities
- Maintain open access to their services
- Expand and improve the activities they provide
- Guarantee the continued support they receive from the government
- Coordinate and broaden the information and exchange networks they have established

The long-term sustainability of venues with commercial goals resides in their low cost, their popularity, their capacity to support themselves without outside subsidies, and their ability to upgrade their equipment and software frequently. The success of venues with social goals is linked to their strong understanding of social demands. These venues must focus first on identifying the public's demands, and second, they must serve as information venues as a way to meet those demands. Furthermore, they must accomplish this within any resources they receive from the government, private enterprises, and international organizations.

Recommendations

Based on the results of this study, five key recommendations emerged:

1. Any policy or initiative involving public access to information should be designed to remove the inequities among genders, socio-economic groups and territories, and should guarantee the rights of the public to access information freely and to use ICTs. It is important to strengthen and reinforce the initiatives, projects, strategies, and policies that are oriented to overcome inequities and to reinforce the ability of the people to participate in the development policies aimed at building an equitable and democratic information-based society.
2. Social strategies should encourage and educate users by using training courses and community activities to make the best use of ICTs. These strategies should be accomplished by creating and maintaining collaborative networks to address the issues that interest the users while simultaneously creating and disseminating more relevant content. The use of Web 2.0 applications should be strongly encouraged.
3. Government agencies at all levels should post information online to give citizens greater access to public information and to promote transparency. Public information venues could become privileged places to train citizens to participate in the E-Government and in E-Democracy processes.
4. The public, private, and associative sectors should establish strong cooperative partnerships to make optimum use of the human, technological, physical, and financial resources allocated by them to support and enhance public information venues. A multi-stakeholder approach would benefit both the implementation and the use of public information venues. This could help to

establish information venues by encouraging partnerships among the various sectors.

5. It is relevant to include in any national digital agenda the need to strengthen public information venues through a combination of positive regulations, a balanced territorial distribution, and allocation of fresh resources. Legislation, at national, provincial, and local levels should establish norms and regulations about the infrastructure, equipment, software, and other important operational aspects with the intent to make them more inviting, to better serve the users, and to make them available to disadvantaged and impaired users. It would be especially advisable to extend the concept of public information access to include the use of cellular telephony because it is already Argentina's most popular and widely used form of ICT. E-government services and information concerning everyday needs could be transmitted via cell phones at low cost.

CONCLUSION

ICTs and Society in Argentina

For the eight years prior to the start of this study in 2008, Argentina suffered from deep political, economic, and social turbulence, but the country worked diligently to resolve the issues. While vestiges of some of those issues linger today, Argentina has successfully addressed others. The most prominent were associated with the macro-economic and institutional areas that included the NGP, an increase in the national reserves, external debt payments, financial stability, increased monetary flow, reduced rates of unemployment, poverty and indigency, and the reinforcement of public powers and the constitutional government.

Nevertheless, the turbulence left a deep mark on the Argentine society. The social gaps, the economic imbalances, and the inequities that emerged during that time have weakened social

networks that historically had been a strong point of the society. This present study gave particular emphasis to social issues and inequalities that influence the general living conditions, especially as they apply to information access.

Two types of particularly important inequalities were identified: (1) socio-economic issues related primarily to the external processes affecting individuals and families such as poverty and indigence, income distribution, employment, the local labor situation, gender, and ethnic factors and (2) regional and intra-urban territorial issues. These all were given special attention when developing research on public access to information, because they are a key constituent of the development model. Not only does inequality foster poverty, it is at the heart of the deep social turmoil that confronted the nation.

Relevance of the Project

The relevance of this research study resides in its ability to confront and analyze the effects of sharply different realities. The primary research focuses on the public access to information and the communication landscape in Argentina and 24 other countries, with specific attention regarding public libraries and similar information venues and the role of ICTs as they apply to the information needs of underserved communities, groups, and individuals.

Methodological Remarks

Defining public access information venues can be a great challenge, and it is imperative that current and accurate materials and data be made available to be analyzed for each type of venue. This condition is especially important when considering libraries that have cultural goals, venues with commercial goals, and venues with social goals. Market conditions and social, political, commercial, and institutional organizations bear a strong influence on any such study.

The study team encountered difficulty in obtaining data and information in many instances and particularly with regard to commercial, governmental, private sector, and social venues. They had greater success when reviewing the Public Libraries system. The study team received valuable assistance from public organizations, such as the CONABIP, and from private enterprises, such as Prince & Cooke.

Lessons Learned

Argentina is experiencing a significant and rapid increase in the penetration of landline and mobile telephony and broadband connections. While Argentina has a relatively advanced information-based society, the general population does not have ready access to universal service. The infrastructure and service differ radically among the urban areas and differ even for more among non-urban areas. A striking difference exists between the right to information granted by the Constitution, and the various national, provincial, and local laws and norms. Compounding this contradictory set of circumstances are the mechanisms and actions of the people at the working levels of the marketplace, governmental, civil, and private sectors.

Future Trends

A number of trends are emerging in Argentina's effort to foster an effective and informed information-based society, particularly with regard to ICTs, information venues, connectivity infrastructure, public policies, and strategies.

The regulatory environment should encompass an effective National Digital Agenda, stimulated by the demands coming from the private information and telecommunications sector, as well as from civil society organizations working to defend information rights. It appears probable that there will be increasing flexibility in the regulations concerning public and private venues. However, it is conceivable that the further development of

e-government will result in agreements among provincial and local governments, and among private and public venues, to promote dissemination of governmental actions, and to increase the ability of the public to influence the development of administrative procedures.

Wi-fi zones for public use in urban and peri-urban areas are already being established in several provinces and communities, and most notably in Buenos Aires, Santa Fe, San Luis, and San Juan. This trend will likely be extended to other areas in the near future. Simultaneously, it is foreseeable that broadband service will be extended nationwide, and is strongly encouraged both by users and providers. Moreover, it is predictable that the national and provincial governments will increase the number of government-supported information venues. These several expansion programs will be accompanied by corresponding increases in the ICT infrastructure and the available capacities in SCO and governmental venues.

Public policies will become active, articulated, and integrated with the implementation of a National Digital Agenda. The tendency to introduce impulsive partial and uncoordinated ICT-supported initiatives related to public access to information will gradually be replaced as effective plans and services are established. Increased activity in the library service sector will outdate the current tendency to favor paper-based information, and replace it, at least partially, by ICT-supported information.

To become efficient and effective, the processes that emerge from the maturation of these various trends first need the reorganization of the information flow methods in the government's own institutions. As previously mentioned, the task of digitally unifying the government's data bases is the first step to provide the public with pertinent information.

Online information and procedures need to be updated, and the various online procedures and exchanges between citizens and the government, such as tax payments, declarations, registrations,

and licences are a valuable but small part of the overall picture. Among the more immediate needs in the eye of the public is the information concerning daily life (education, job searches, marriage, divorce, identity documents, death certificates, and many others). Government portals are classified according to the quantity and quality of the information they provide, and on their user friendliness – Argentina’s government website administrators admit to the need for widespread improvement.

The need for an increase in citizen participation remains a key issue. Even if websites and portals are the e-government’s more extended resources, other virtual channels, such as electronic forums, blogs, chats, and online voting are being considered by local authorities. Moreover, the creation of content for local and online communities needs to be encouraged. It is important that each community, either geographic (sharing a common space) or virtual (sharing common interests) can produce and upload content created by members of each community to satisfy the community-specific needs.

The research team recognized that the available information about the venues and venue types studied during this project is both scarce and incomplete. Both the government institutions

and the civil society organizations consulted during this study admitted that they have difficulty compiling and updating the information related to their own initiatives.

It is a complex task to identify specific social initiatives that have information access projects using ICTs because most of the government projects are physically and institutionally implemented through social organizations and through civil society organizations.

The research team found the territorial coverage and dynamics of the venues remarkable. The venues offer a great opportunity to access public information, and a National Digital Agenda will do much to encourage the coordination and development of information access policies that will effectively respond to Argentina’s specific needs.

ENDNOTES

- ¹ La Gaceta Journal, February 6, 2008, http://www.lagaceta.com.ar/nota/256511/Informacion_General/11pc_hogares_argentinos_tiene_dos_computadoras.html

Chapter 12

Public Access ICT in Brazil

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EXECUTIVE SUMMARY

Brazil is one of 25 nations to participate in a study about the public's ability to access information and communication technologies through public access venues, such as libraries, telecenters, and cybercafés. The study was organized by the Technology & Social Change Group (TASCHA) at the University of Washington. In recent years, Brazil has undertaken substantial efforts to provide the public with access to information and communication technologies (ICTs) as a way to foster its social and economic development, which is impeded by widespread poverty and economic inequality. A national shift towards an information-based society is occurring in both government and civil society. This movement includes initiatives to promote ICT access in underserved communities, lower tax rates to reduce computer prices, and investments in telecenter and school information technology laboratories through national poli-

cies. In addition, an entrepreneur-driven boom in cybercafés — mostly located in low-income neighborhoods — has altered the Internet access landscape in the country (Santos, 2008, p.35).

The study team was composed of Brazilian researchers and was coordinated by the internationally recognized Fundação Pensamento Digital, an organization dedicated to creating and supporting telecenters in partnership with other institutions. Many of the foundation's lead staff are social scientists holding or pursuing doctoral degrees with connections to the telecenter world — a status that enabled the team to draw upon pre-existing contacts with policy makers, government officials, non-government organizations (NGOs), and community leaders.

To provide context for this study, the researchers reviewed the existing literature on ICT access in Brazil. Most importantly, the Brazilian Internet Steering Committee (CGI) conducted a comprehensive survey on ICT access in 2007. The results revealed that from 2006 to 2007, there were marked increases in the number of Internet

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users, computer owners, broadband connections, cybercafé users, and free access centers.

The study results were developed while giving due consideration to the interacting financial, political, and, most importantly, the socio-economic circumstances in Brazil. Consequently, the study placed an emphasis on disadvantaged and underserved communities.

To assess how the underserved population is benefiting from these efforts, and to determine what remaining information needs and opportunities exist, the researchers examined public access to ICTs in libraries, telecenters, and cybercafés. The investigation was conducted in two phases. The first phase was composed of (1) individual interviews to gather information from key stakeholders, policy makers, government representatives, and venue network coordinators, and (2) a review of secondary literature that covered the CGI study on ICT use in Brazil, government documents and websites, and studies on Brazilian poverty, social research methodology, and urban definitions.

During the second phase, the researchers interviewed 43 venue operators throughout the five Brazilian regions regarding ICT services, and then surveyed 1,284 venue users to discuss their ICT needs, barriers, and untapped opportunities.

The results of the Brazilian efforts to expand ICT access are clear. Even in underserved communities, the ability to access information and ICTs frequently exists. For example, adolescents often visit social networking websites in cybercafés, and educators are using ICTs at telecenters to network with other NGOs, plan and execute their activities, and broadcast their achievements and challenges. E-government services are becoming increasingly available, and a significant amount of content in Brazilian Portuguese is accessible on the Internet. However, there is a serious capacity gap among the underserved population; most lack the ability to use ICTs or obtain and apply information that meets their daily needs. Furthermore, little has

been done to overcome or address the various inequities.

In all of the venues studied, there are few services, such as training courses, workshops, tutorials, or assistance to address the overall lack of technological capacity, and that perhaps is due to the Brazilian concept of “service,” or the cultural role attributed to these venues. The researchers observed that people do not necessarily view public access venues as sources for information, but rather as opportunities for communication. Locally relevant content accessible to those with low levels of functional literacy is greatly needed.

From an ideal perspective, public access venues would incorporate the sustainability and infrastructure of cybercafés, the community appropriation and social approach of telecenters, and the qualified personnel researchers observed in libraries. Given the realities in Brazil, the researchers identified several promising opportunities to help address the need for ICTs. Among those opportunities, Brazil must work to transform venue operators from passive facilitators of ICT access to active agents of change and develop them to become persons who promote reading and information appropriation and who understand the needs in their communities.

Other important forward-looking steps include: (1) creating ICT training courses based on modules that will engage users in a variety of skill-building exercises, (2) establishing more community-based libraries, either in telecenters or as stand-alone entities, (3) encouraging schools to open their libraries and computer laboratories to the public and to interact with families in the community, and (4) helping cybercafés adopt educational goals, relieving them of their association with video games and enabling them to participate in the information-based transformation of Brazilian society.

INTRODUCTION

Country Overview

Brazil is the largest and most populated country in South America, and is the fifth largest and fifth most populated country in the world, with an area of 8.5 million sq km and roughly 190 million people. It is thought to possess 20% of the world's biodiversity, which is concentrated in the interior of the country in the Amazon Basin and the Pantanal wetland. Meanwhile, most Brazilians live in urban environments along the coast, where underserved communities also are concentrated. The five most prominent cities are São Paulo, Rio de Janeiro, Salvador, Belo Horizonte, and the capital, Brasília.

Brazil is divided geo-politically among 26 states that contain 5,563 municipalities distributed across five regions identified as the North, Northeast, South, Southeast, and Center-West. Each one of these five regions has a distinctive geography, economic activity, and culture.

The North region is the largest of the five, but it is also the second least populated. The great majority of its territory is covered by the Amazon Rainforest, which, despite intensive deforestation, remains the largest in the world. As such, a lack of transportation infrastructure and subsequent isolation serves to inhibit the development of the region.

The Northeast region is home to 27% of the country's population and is Brazil's poorest region. More than a quarter of the region's inhabitants earn less than the minimum wage. Recurrent drought has crippled agricultural development and forced many people to migrate to the Southeast region in search of a better life. By contrast, the Southeast is Brazil's most urban and developed region, and is the focal point of the country's industrial activity. The Southeast region is responsible for producing more than half of the country's GDP, but it is also the region where urban poverty and crime are most pronounced.

The South region is the second most important region economically, given its thriving agricultural sector. It is also home to Brazil's most highly educated and healthy population, when measured by the literacy rates and average life expectancy, respectively. Finally, the Center-West region is Brazil's second largest and least populated region. Brasília, in the Federal District, stands out as the governmental hub, and is one of the most economically productive and developed regions in the country (National Geographic Atlas – Brasil, 2008. p.36-91).

Brazil is governed as a democratic republic and features a constitutional system of checks and balances among the judiciary, executive, and legislative branches. A president is elected to a four-year term and is the head of state. Each of the 26 states has a governor and each municipality has a mayor, and the population elects both directly.

The Brazilian culture is an amalgam of indigenous, European, and African influences, and is reflected across the language, music, dance, architecture, and in ongoing daily life. Brazilians speak Portuguese, and are predominantly Roman Catholic. The population is mostly white (49.7%) and mixed-race (42.6%), with smaller numbers of black, Asian, and indigenous minorities (IBGE, 2008).

In recent decades, Brazil has experienced a reduction in birth rate, an increase in life expectancy, and has reached what some demographers term the demographic "window of opportunity" in which the economically active population exceeds that of children and the elderly (National Geographic Atlas – Brasil, 2008. p.17). However, there are still serious demographic, social, and educational inequities that are exacerbated by the widespread poverty and income inequalities. For example, women are paid 18% less on average than equally qualified men (Rais, 2005). In particular, the black population is disproportionately poor and suffers more from violent crime, a lack of education, poor health, and unemployment (OEI, 2004).

A number of policies, including those related to information and communication technology (ICT) and digital inclusion, are implemented at the national level, though some states, such as São Paulo and Bahia, have their own digital-inclusion programs. Brazilians have adopted the use of ICTs in elections, early and successfully, which has drawn attention from developed countries seeking to learn from the Brazilian experience.

This regional, political, and demographic context influences the ICT landscape in several ways. First, the geographic size of the country makes reaching underserved populations especially challenging. Not only are populations unevenly distributed across thousands of kilometers, but they are also sometimes isolated by geographic barriers, such as the massive Amazon Rainforest. By contrast, Brazil's high urbanization rate (85% overall and more than 90% in some regions) means that many underserved communities have physical access to government resources and initiatives, including the ICT infrastructure. Additionally, the complexities of the regional diversity means that "one-size-fits-all" policies do not work well. For example, the economic and social realities of the state of Mato Grosso do Sul are entirely different from those of its neighbor, São Paulo. Despite Brazil's diversity, virtually all Brazilians speak one language, which greatly facilitates information delivery and the production of locally relevant content.

Methodology

The team that conducted this study was composed of Brazilian researchers and was coordinated by the internationally recognized Fundação Pensamento Digital, an organization dedicated to creating and supporting telecenters in partnership with other institutions. The foundation is nationally and internationally recognized and was named "Best NGO for Digital Inclusion" in 2005 by the Brazilian telecommunication company, Telemar. Many of the foundation's lead staff are social scientists

who hold, or who are pursuing, doctoral degrees, and have connections to the telecenter world — a status that enabled the team to tap pre-existing contacts with policy makers, government officials, NGOs, and community leaders for this study.

To provide context for this study, the researchers reviewed the existing literature on ICT access in Brazil. Most importantly, the Brazilian Internet Steering Committee (CGI-BR) conducted a comprehensive survey on ICT access in 2007. The results revealed that from 2006 to 2007, there were marked increases in the number of Internet users, computer owners, broadband connections, cybercafé users, and free access centers.

Research also has shown that the effort to develop human capacity in Brazil is deeply engrained in the challenges facing the education system. While 93% of school-age children are attending school, the quality of the basic public education remains a serious problem. For example, among 40 participating countries, Brazil ranked 37th in reading and 40th in mathematics (OECD, 2003). The national Functional Literacy Index revealed that 72% of Brazilians are not fully literate (Instituto Paulo Montenegro, 2007). Other sources, including academic publications on poverty and inequality (Neri, 2007), magazine articles (Couto, 2008; Linardi 2008), and government websites (statistical institutes, department portals, policy overviews) were also consulted prior to conducting the study and are cited throughout this description of the study.

To describe the public access landscape, the researchers investigated the three most significant categories of venues: public libraries, telecenters, and cybercafés. These categories were selected based on the quantity of the venues, the type and extent of network partners involved, and the degree to which they serve, or have the potential to serve, the underserved population. The research was conducted with an understanding that in addition to geography, the nation's socio-economics, the education system, and age influence ICT access in these venues. A CGI-BR study revealed that

while increases in ICT access have been observed across all socio-economic strata, access remains skewed toward the more privileged population.

For example, 94% of the people in the privileged category have used the Internet, while only 17% of the people in the lower-economic segments have browsed online. Accordingly, poorer people rely more heavily on public access, while the wealthier people access the Internet from home and at work. Among Internet users earning less than the minimum wage, 78% declared they access the web through paid public access centers. By contrast, only 30% of those who earned more than five times the minimum wage relied on cybercafés (CGI-BR, 2008). The same study showed that 78% of people who do not own computers and 58% of people who are not connected to the Internet cited cost as a limiting barrier.

Education and age also influence public ICT access. In 2007, 64% of users in elementary school, 53% of students in high school, and 54% of adults with less than an elementary school education used cybercafés. However, only 27% of the users with university degrees used these venues (CGI-BR, 2008). Furthermore, most public access users in Brazil are younger, but in some Brazilian states, legislation technically forbids unaccompanied children under 12 years of age from visiting cybercafés.

Working under the assumption that computers alone do not constitute access, and based on the guidelines that governed this study, the study team developed and conducted research designed to respond in the best possible way to local context and needs, and in a way that capitalized on the team's expertise and networks. The guiding research question for this study was: What are the information needs and opportunities to strengthen institutions that offer public access to information and communication, especially to underserved communities, and especially through the use of digital ICT?

During the first of the two phases of this study, 6 individual interviews and 11 surveys were conducted to gather information from key stakeholders, knowledgeable individuals, policy makers, government representatives, and venue network coordinators. Three public access centers were visited to establish case records for each venue category. During the second phase of the study, the researchers interviewed 43 operators in libraries, telecenters, and cybercafés and surveyed 1,284 users in those venues.

Because of time and budgetary constraints, the venues for the second phase were selected by using purposive non-probability sampling. In this technique, researchers establish the sampling criteria based on their informed judgment. In each of the five Brazilian regions (South, Southeast, North, Northeast, and Center-West), a representative state was selected, and eight to nine venues (approximately three for each venue category) were visited. All centers were officially located in urban areas, according to Brazilian law, but fully one-third of venues were located in small, primarily agricultural towns, which would qualify as rural by most definitions.

Overall Country Assessment

Six years before this study was conducted, Brazil seemed headed for an economic crisis, but since then, economic growth has been unprecedented, even in the face of rising food and fuel prices and high rates of global inflation. Brazil is rich in natural resources, including timber, fresh water, gold, and iron ore, and has more than 70 million hectares of unused, arable land. In recent years, the country has also announced the discovery of up to 30 billion barrels in deepwater oil, a reserve that, when exploited, stands to make Brazil a significant leader in Western Hemisphere oil production. Moreover, Brazil is the only country producing cost-efficient bio-fuels without affecting its food supply. Importantly, Brazil's economy

remains diversified, succeeding in the aviation, transportation, banking, paper, and household appliance industries. Finally, Brazil's stable political democracy lends itself to direct foreign investment (Margolis, 2008).

Poverty, however, remains a serious concern, especially in metropolitan areas, and there is a great demand to implement projects designed to improve the quality of life and higher levels of educational attainment among the population. Brazil's relatively high per capita income of US\$8,446 (IBGE, 2007) contrasts with the terrible income inequality said to be one of the world's worst, according to the GINI index.

Poor infrastructure, inadequate educational and public health systems, and widespread functional illiteracy also threaten Brazil's competitiveness. However, recent research conducted by Fundação Getulio Vargas (FGV, 2008) in six metropolitan areas indicates that the number of poor people has decreased, and there has been a growth in the number of middle and upper class families. As the purchasing power among the lower income classes increases, fee-based venues such as cybercafés become more affordable possibilities for ICT access. In this context, many entrepreneurs from low-income neighborhoods have purchased computers and installed them in a room or a garage, connected them to the Internet, and charged users affordable fees for access.

Increased purchasing power in the poor population resulted in a 23% increase in computer sales and a 211% increase in laptop computer sales from 2006 to 2007 (ABINE, 2008). Meanwhile, Internet access in cybercafés jumped from 30% to 49% of overall Internet use, totaling 22 million of 45 million Internet users – an increase that reflects a changing, more open dynamic in Brazil's ICT landscape. In addition, 40% of families earning between three and five times the minimum wage own computers, up from 23% in 2006. Overall, 24% of Brazilian households have computers, and broadband connections in households exceed dial-up connections (CGI-BR, 2008).

Notably, the mobile phone industry is also expanding in Brazil. In May 2008, there were 130 million active mobile lines in Brazil; 45 million cell phones were sold during 2007 (ANATEL, 2008 and Teleco 2008). The combined effect of expanded service areas, lower prices, and enhanced technology means that cell phones should be viewed as vehicles for information delivery in the future.

The national ICT regulatory framework supports the expansion of ICT access for the underserved population. The coordination and integration of Internet-service activities in Brazil is controlled by the Brazilian Internet Steering Committee (CGI-BR), an organization composed of members of the government, the business sector, nonprofit groups, and the academic community. Importantly, the 1995 Lei Geral de Telecomunicações, which established a new private model for telecommunication services in Brazil, also created the National Agency of Communication (ANATEL) to regulate the Brazilian telecommunication industry. As part of their licensing agreements, the three telecommunication companies that share the broadband market must maintain a policy of corporate social responsibility. Recently, for example, the Brazilian government negotiated with operating telecommunication companies to extend broadband service to all Brazilian municipalities, and connect, free of charge, all urban schools by 2010. By the end of 2008, 22,000 schools will receive broadband connectivity, while 55,000 schools will be connected by 2010 (Santos, 2008).

ICT expansion relies on a thriving NGO sector, as the government implements much of its social assistance policies and informal education programs through partnerships with NGOs. The national government has chosen to emphasize telecenter creation via these partnerships as its primary ICT promotion initiative aimed at the underserved. Federal initiatives to create telecenters in low-income communities exist in several ministries, a fact that has drawn criticism from those who advocate a unified policy. But despite

some public administration disadvantages associated with decentralization, the federal telecenter programs have collectively contributed to horizontal — as opposed to vertical — ICT integration into society (as advocated by authors such as Castells).

Critics argue that national policies focus on telecenters at the expense of the other public access venues. The government has no prominent policy initiatives designed to equip a significant number of libraries with computers or connect them to the Internet, nor is there any effort to partner with or support cybercafés. And while official data are unavailable, it is estimated that fewer than 15% of all libraries have any ICT infrastructure.

There has been some discussion in government circles to expand the scope of ICT initiatives, but recent efforts have been focused primarily on promoting ICT access in schools by creating information technology laboratories. There is also a plan to purchase 150,000 educational laptop computers for 300 schools throughout the country in 2008. The goal is to test the viability of one-to-one computing in Brazilian public schools (SERPRO, 2008).

In spite of these policies, many Brazilians remain unable to take full advantage of the information available to them due to poor reading skills or the inability to see how ICTs might improve their lives. While virtually all school-age children attend school, the education system has failed to properly educate Brazilian children (INEP). For the 72% of the citizens who are not fully literate, extracting information from currently available content presents a major challenge (Instituto Paulo Montenegro, 2007). At the same time, online access, in whatever form, also increases the importance of written language.

ICTs allow for multi-media-based information transmission, which facilitates access for illiterate or semi-literate users. Youth, even in underserved neighborhoods, are often able to interact and respond easily with music and pictures to create profiles for social websites, such as Orkut, that

can require more complex uses of ICTs, such as HTML scripts.

Notably, some Internet-enabled NGOs are using ICTs to network with other NGOs, plan activities, and communicate achievements and challenges. Others have also integrated ICTs into the social projects they develop, such as sewing and cooking cooperatives, daycare, dance, music, etc. (Voelcker, 2006).

Given a framework that supports ICT expansion, this research highlights the need for initiatives that improve literacy and foster a culture of reading while allowing for greater appropriation of information and moving ICT use beyond social networking.

The researchers identified four principal types of information needs in underserved populations. First, initiatives to improve literacy are necessary. Promoting social and economic development is impeded largely by the inability of low-income populations to take advantage of information, and not so frequently by their access to it.

Second, underserved communities need readable summaries of research on inequities and potential solutions. Brazilian universities have produced significant research on social development and educational improvement, but the results of these studies are not usually accessed by school coordinators, teachers, NGO leaders, or policy makers.

Third, more effective means must be devised to inform the underserved population about educational and job opportunities. Aside from formal schooling, there are a variety of social and educational programs promoted by the different levels of government (federal, state, and municipal) and NGOs designed to strengthen development opportunities in low-income populations. Many of these programs are community-based and are free. The greatest challenge, aside from expanding the scope of these programs, is to inform the underserved population of the existence of such programs.

Finally, the government must improve its means of promoting health information. With regard to information delivery, the Brazilian government has made significant strides in the fight against HIV/AIDS and dengue fever, mostly through television, radio, and newspaper campaigns. However, a stronger effort is needed to deliver information adequately to the public about chronic diseases and the diseases related to poverty, such as diarrhea, malnutrition, malaria, and tuberculosis (O Globo, 2008).

Collaboration among the venue categories is another particularly important opportunity to expand ICT access to the underserved. Organizations, governments, volunteers, and private companies have already worked together to promote public access in NGOs via telecenters. NGOs receive donated equipment, are Internet-enabled through private support or via government initiatives (such as GESAC), pay personnel with funds from other projects, and count on volunteers for operation (Inclusão Digital, 2008). They also partner with universities and other NGOs to improve access and offer educational courses. Thus, many partners work together to maintain community telecenters, but telecenters are responsible for less than 6% of Internet access in Brazil, and struggle to sustain themselves and train their workers (CGI-BR, 2008).

Libraries also collaborate with local schools to receive school-sponsored visits, but the researchers did not identify any similar collaboration involving cybercafés. However, all venues collaborate, even if informally, with schools, and school children access the Internet for homework, borrow books from libraries, and participate in after-school courses or workshops promoted in telecenters.

The researchers noted possibilities for more collaboration across venues. For example, exchanges between telecenters and cybercafés could produce cybercafés that offer educational activities (courses or workshops) during off-peak hours. Alternatively, cybercafés could partner with

the government to further digital inclusion and to deliver services to assist new Internet users. By partnering with already existing cybercafés to develop social educational projects, government efforts could reach a much greater segment of the population. Libraries might also work with telecenters to obtain computers.

In the state of Bahia, a telecenter housed inside a public library, managed to receive funds from Identidade Digital. Conversely, libraries could also be installed in telecenters, and librarians could work with telecenters to train personnel. According to local legislation, corporations that invest in cultural initiatives are eligible for tax deductions equivalent to 100% of their investment. Because libraries qualify as cultural initiatives, the law can serve to stimulate the creation and maintenance of new libraries as stand-alone entities or within existing telecenters.

Inevitably, to attract new users effectively, national policies must consider local perceptions of “legitimate use” and “coolness” (defined as social attractiveness). Cybercafés are the most socially attractive of the three studied venues, their hours are extensive, they often serve food, and there are no restrictions on browsing or software, but the government, society, and other venues do not perceive them as places to learn. In many cases, cybercafés remain associated with games (hence their colloquial name LAN Houses), even though providing access to the Internet is their primary economic activity.

In libraries, “legitimate” use of ICT is focused on research and e-mail. Most of the libraries that were surveyed prohibited accessing social networking sites, downloading, using CD/DVDs, and games. In two surveyed telecenters, users could only access websites suggested by the telecenter staff and to only to focus entirely on the themes of the courses or workshops the telecenter was offering. Thus, in some ways, the venue with the most momentum politically—telecenters—were the least attractive to users.

Venue Assessment

The primary public access venue landscape in Brazil is composed of libraries, telecenters, and cybercafés. There are roughly 5,000 libraries, 13,000 telecenters, and 58,000 cybercafés, and each has its own political, social, and economic context.

Public Libraries

All public libraries offer free access to community members and offer unrestricted access to the collections, facilities, and equipment. The researchers noted that libraries are generally accessible, open, and safe, and most are able to accommodate physically impaired users. Although public libraries are regulated and supported by the federal and municipal governments, the system does not adequately invest in new libraries or ICT development, and they choose instead to focus on printed materials. Based on data gathered through interviews and surveys, fewer than 15% of Brazil's public libraries offer ICT services. While libraries frequently have computers for internal use, most libraries do not offer ICT services to their users, not even to search the collections, which are already digitally cataloged.

The more affluent Southeast region has the greatest concentration of libraries that exhibit a higher quality and greater quantity in their content. Furthermore, most libraries are located in city centers or near government buildings and do not necessarily focus on the needs of the underserved groups (Suaiden, 2000). These data do not factor in the 46,000 school libraries in Brazil that exclusively serve schoolchildren.

The survey conducted for this study shows that most users are women (54.4%) between 15 and 35 years old (64.7%), who visit the libraries frequently (29.9%) or regularly (21.1%). Most users seeking information in libraries are students. In general, students go to the library for education (34.8%), news (21%), e-mail (29.1%) and general

web browsing (18.9%). Social networking (14.2%) and games (13.9%) frequently appeared in the survey. While users claim that hours of operation are a barrier, operators point to a lack of resources in their libraries.

In libraries without ICT access, most users also affirmed that access to the Internet would help them with schoolwork and enhance the services already offered by the library.

According to survey data, library users generally have the capacity to take advantage of public access to information and communication resources, and many of them seek educational information frequently or regularly. Nonetheless, it is clear that library users do not represent the overall population. Of the library users who were interviewed, 77% had some college education, while only 17% of the total Brazilian population is college educated. These percentages are construed as concrete evidence that library users do not come from underserved groups. Moreover, with regard to printed information, few services exist to motivate people to read and search for information. In venues where ICTs are offered, there is little or no ICT training available.

The political environment does not appear to be addressing these capacity gaps. The National System of Public Libraries supports the creation of new libraries and coordinates the national policy, but each state manages its own system independently and allocates the funding according to its own budget. There is also a national Open Book Program that creates centrally located public libraries in towns that do not have a library. To participate in the program, towns must register with the national system and provide specific information about their constituents (Fundação Biblioteca Nacional). Unfortunately, these libraries may remain inaccessible to many low-income community members who typically live in peripheral areas.

According to interviews with recognized experts, some government officials are also working to change the perception of libraries from a book

repository to a more dynamic space, a space that is able to host exhibitions, caf  s, and Internet access. The researchers were not able to identify government funding allocations to implement such ideas.

Telecenters

Telecenters in Brazil are places for the public to access to ICTs, and usually consist of a room open to the general public with computers connected to the Internet, with most hosted by NGOs. Brazilian telecenters offer free public access to information, but may charge small fees for some services, such as printing. Users in the North and Center-West regions mentioned cost as a barrier to this type of venue, but venue operators do not charge for Internet access. In the South and Southeast regions, users did not mention cost as a barrier, and in the Northeast region, only 8% of the users mentioned cost as a barrier.

Telecenters are generally considered to be safe places, largely because they are usually hosted by community associations that also offer daycare, after-school activities, and a variety of social and educational programs. In some centers, such as those in Porto Alegre, Internet speed is slow and limits the usefulness of access to the Internet. The main barriers to access mentioned by users were the operating hours (24%), lack of training (15.9%), and lack of relevant content (14.1%). During visits to telecenters, the researchers observed that access for physically impaired users generally is inadequate.

Most telecenter users are female (55.3%) and young (90% are under 35 years old). Most users visit the centers frequently and often seek entertainment, while half of the users mentioned either social networking or games as their main activity. The infrequent use of ICTs in telecenters for educational purposes can be attributed to the limited reading skills among underserved populations. The researchers observed that most users do not understand how to integrate ICTs effectively into

their lives or their work, either because they are not trained to use it, or they do not comprehend the possible benefits. Nor do operators understand the broader potential for technology to empower users to use technology in innovative ways for general and educational purposes.

Despite these challenges, the political will for creating and supporting telecenters is stronger than for the other venues studied. To create a telecenter, an NGO usually establishes a partnership with donors, funding sources, or other partners, resulting in interesting collaborative networks. For example, GESAC is a federal government initiative that offers free Internet access to NGOs and schools. CDI and Funda  o Pensamento Digital are examples of NGOs that refurbish computers and donate them to other NGOs to create telecenters, while also offering continuous training and/or professional development for telecenter staff.

Some municipalities, such as S  o Paulo and Porto Alegre, and state governments, such as Bahia and S  o Paulo, have their own telecenter programs. These governments partner with NGOs located in underserved communities, donate computers, supply Internet connectivity, and pay small wages to local youth who assist users inside the telecenters. The federal government has a variety of initiatives that create networks of telecenters, following the same framework of partnerships and roles.

The private sector has also been creating telecenters under their social responsibility umbrella, usually in partnership with community organizations. Some examples include Brasiltelecom, Vivo, Oi, Microsoft, Dell, Vale do Rio Doce (mining), Accenture, and Petroflex (chemistry) (IBICT, 2008; Funda  o Pensamento Digital, 2007).

The widespread presence of these initiatives shows that telecenter creation is a trend in Brazilian social programs to connect underserved communities to the developed society and empower them to learn how to learn, to stimulate entrepreneurship, and to prepare their youth to live in the information age.

Cybercafés

Cybercafés have become the most widely used places to access the Internet, and are used primarily by young and low-income individuals. Cybercafés are private centers created by small entrepreneurs, and offer users access to the Internet and to several software programs for unlimited time periods. The venues charge the users for the time they use the services.

Many cybercafés are located in medium and low-income communities, and are often not legally registered. Typically, the venues offer access to newer, high-quality computers and are sustainable through the fees they charge for access to the equipment. Cybercafés are frequently open day and night seven days a week, making them easily available. However, in some cases, the cybercafé environment is not ideal for children because many are located in bars or restaurants that sell liquor.

Cybercafé users generally are male (67%), under 19 years old (69%), and visit the center frequently (44%) or daily (30%). Regarding their activities, users stated that social networking (29%), games (21%), e-mail, and chatting (19%) were all relatively common. When asked about barriers to access, 29% of users mentioned the cost of services (Internet access).

There is no training or formal educational support offered by venues, but cybercafés do offer some informal help for inexperienced users. Most learning occurs individually, or among peers. Considering that there are no ICT training courses, workshops, or guided activities in cybercafés, the researchers concluded that the capacity to take advantage of available information is dependent a user's functional literacy and familiarity with available information services.

Cybercafés are an important access point in Brazil, but their driving goals and overall management are vastly different from those of libraries or telecenters, which are supported by the government. Until recently, cybercafés were not considered part of the digital-inclusion move-

ment in the country. The National Association of Centers for Digital Inclusion, also known as the National Association of Cybercafés, helps centers register officially with the government. Government restrictions, usually concerning unaccompanied minors, vary from state to state and are commonly ignored.

The rapidly increasing number of cybercafés in Brazil can be explained in part by the growth in the economy and the corresponding reduction in poverty. As a result of increased purchasing power and facilitated credit, many entrepreneurs in *favelas* and other poor neighborhoods have launched their own cybercafé micro-businesses. By contrast, cybercafés have not succeeded in upper-class neighborhoods, most likely because most of the targeted population already has access to the Internet at home or in the workplace.

Across all venues, the self-reported data suggest that users seek entertainment more often than the operators believe they do. According to center operators, people typically use the library and telecenters for educational purposes, while those who use cybercafés do so for entertainment, but users conveyed a different picture. Only 35% stated that they visit libraries for educational purposes. More drastically, only 14% of telecenter users said they used the Internet for education, compared to the 40% of operators who claimed their constituents relied on telecenters for such activities. Both operators and users agree that people rarely search for agriculture-related or health-related information.

General Lessons, Success Factors, and Recommendations

Access to ICTs in Brazil is being created and enhanced through public policies, private initiatives, and telecommunication-industry agreements with the government. Sufficient local content also exists in Brazilian Portuguese, and e-government services are available and growing, with plenty of content in Brazilian Portuguese available on

the Internet. Nevertheless, large numbers of users commonly lack the capacity to use ICTs and to appropriate and interact with information, which is viewed as a problem that reflects Brazil's educational inadequacies. A question frequently asked is how can Brazil progress when many parents have lower levels of education than their elementary-school children? The Brazilian government and society must recognize that development of collective intellectual capital cannot be confronted solely or resolved by the educational system.

There are clear signs of improvement, and, for the most part, Brazil has embraced NGO-driven social movements and continues to look to telecenters to improve ICT access and capacity. The conditions have improved since the military dictatorship ended, when young people took to the streets to fight for their rights. Today, Brazilians, rich and poor, are able to achieve changes in their society by establishing or working with community-based organizations on social and educational projects funded by the government and the private sector.

As NGOs have increased in quantity and quality, the government has turned to them to implement many of its social initiatives. Granted, these projects suffer from serious sustainability problems, as only the best proposals are funded. Nonetheless, research and advocacy in the "third sector" are thriving, and countless individuals seeking to make change have successfully made careers in this field. In this sense, the active participation of the society to improve ICT access, among other social goals, is a groundbreaking trend. At the same time, the emergence of cybercafés run by small entrepreneurs in low-income communities has surprised policy makers, and the possibility for them to promote social solutions must be considered. Success will also hinge on the continued investment of the private sector.

Still, in all of the researched venues, there are few courses, workshops, tutorials, or assistance that address the capacity gap, perhaps due to the Brazilian concept of "service," or cultural role, at-

tributed to these venues. The researchers observed that people do not necessarily view public access venues as sources of information, but rather as venues for communication. Even libraries are not succeeding in attracting large segments of the population, though insufficient budgets and local culture are partly to blame for the lack of services that promote reading.

In essence, Brazil must continue to support policies that expand ICT access, but it must also consider how to best help underserved communities use ICT-enabled information. Computers and the Internet are naturally enticing, especially to young people. There is an opportunity to transform this interest into development through increased integration of reading and appropriation of information into people's daily lives. Without this transformation, low educational levels will continue to impede societal progress (Drucker, 2001; Castells 2001; IADB, 2007). In this context, there clearly is a need to invest in initiatives that effectively attract community members to public access venues and which successfully promote reading among underserved communities. Brazil needs to create social-change agents out of venue operators who understand their community's needs, enabling them to also promote reading and information appropriation. Nowhere is this opportunity greater than in cybercafés, which have a large clientele but which currently do not engage in a social agenda.

Venues themselves also need to be more community oriented by tailoring their activities to local populations. In libraries, this could mean changing the geographical model from a single centrally located library to several smaller, community-based branches. In developed countries, such as the United States, community-based libraries already play important community roles by hosting storytelling, author readings, parenting workshops, and art lessons. In Brazil, this role could be expanded to include ICT-related activities, such as collaborative writing workshops, blog and website creation, image editing, and presentation production.

It is necessary, therefore, to fund community-based services in venues and develop the personnel needed to manage them properly. Significant financial resources would be required to train and hire qualified staff to host and promote these activities, but if clear goals, and proof of their attainment, are established, sustainability is possible through government, NGO, and private-sector funding. Given the reduction in poverty in the country, users could also be charged a small fee for access to such services.

To start, the researchers propose a pilot program that promotes a series of related services, to be implemented in all three studied venues, but with different models for sustainability. Such a project would aim to create innovative services that engaged the population in ICT-enabled information appropriation and contributed to their development as citizens of an information-based society. The success of the program would rely on the creation of a new kind of venue operator, or “community librarian.” Unlike formally trained librarians, community librarians would likely have educational backgrounds similar to those of the people they served.

The researchers also recommend the creation of a sequence of module-based ICT courses, or an ICT curriculum, for several age groups to be offered by telecenters or cybercafés. The implementation in telecenters could be supported by the government through public policies. Cybercafés could offer the courses as a paid service, provided a qualified person was hired to help teach the courses. Offering courses in cybercafés would help free them of their association with game-playing and increase sustainability as they attract more young people supported by their families, as well as adults searching for information or certification. The government and other partners could collaborate with paid centers as they do with telecenters.

More libraries should be created, either in NGO-based telecenters by giving greater scale to existing programs, or by creating smaller

community public library branches similar to the neighborhood library system in many cities in the United States. Again, existing resources could also be used to form programs intended for telecenters to create telecenters inside existing public libraries. A library in the state of Bahia has succeeded in using this approach to acquire computers with investments from the Identidade Digital program. This program donates computers to create telecenters and covers the costs related to Internet access and operator salaries. Currently, most programs with the resources to create telecenters focus mainly on NGOs or grassroots organizations.

Finally, given the government’s emphasis on IT laboratories in schools, the researchers believe that opening up access to these venues during non-school hours would greatly enhance their social benefit. As it stands, all urban schools in the country will have a broadband-equipped laboratory by 2010, meaning that there is an opportunity to dramatically expand ICT access to underserved populations without investing in additional programs (Santos, 2008). While certain logistical issues would need to be addressed, such as staffing personnel during nights and weekends, the researchers believe that these challenges are small in comparison to their potential impact.

CONCLUSION

The research presented here is the result of a study that looks at the ability of the public to access information and communication venues in Brazil, and was organized by TASCHA at the University of Washington. The researchers undertook this study both to examine the diversity of venue roles and the status of public access to information in Brazil. The process highlighted serious, previously known weaknesses in ICT access, such as the inadequacy of the public library system, but it also revealed new strengths, such as the expanding role

of cybercafés in the country and the opportunity for increasing collaboration among venue types.

Not only are resources needed to install computers and Internet connectivity in underserved communities, but there also is a need for practical knowledge to plan, implement, and evaluate projects that aim to improve the quality of life for the underserved communities. Many ongoing ICT projects have not set clear goals. The researchers realized that in projects funded by the government, the focus of existing assessments is to determine if the granted resources are actually used in the project (to prevent corruption), instead of the assessment focusing on the implementation quality or achieved results. More studies on ICT access are recommended, especially those that rigorously evaluate the positive impact (or lack thereof) of various proposed programs.

There were several challenges in conducting this study. First, the sheer size of the country made collecting extensive data difficult, and, as a result, statistical analyses could not be performed within the limited sample size. Still, the team was able to interview operators and collect surveys in each of the five Brazilian regions. Second, some data were unobtainable, such as the national budget for libraries, the distribution of cybercafés in the country, and the exact number of libraries equipped with ICTs.

Compared to traditional library collections, ICT access allows access to much more content and enables more interaction among users and content authors. For example, the creation of self-organized communities in wikis and the popularity of blogging and social networking websites enable authorship unseen in other realms. Educators and academics view ICTs as a precious resource for stimulating authorship, interaction, and, as a result, knowledge production (Fagundes, 1999). However, less complex processes, such as searching for information, selecting, reading, and copying also deserve recognition for their ability to develop reading and ICT skills. Considering the educational challenges facing Brazilian society,

with its high levels of functional illiteracy and poor results in national and international educational assessments, the use of ICTs, however simple, can play an important role in educating citizens.

The possibility to interact with ICTs is much richer than passively reading printed information. When seeking information through ICTs, people can receive, reproduce, change, share, save, and process the information alone or in groups of peers or experts. Importantly, ICTs allow for interaction with multi-media and are an extremely useful tool for reaching the illiterate and barely literate population, as well as for promoting appropriation of information among youth. Thus, there is an untapped opportunity in using existing public information access venues, equipped with ICTs, to stimulate learning and skill development in Brazil's underserved populations.

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Chapter 13

Public Access ICT in Costa Rica

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EXECUTIVE SUMMARY

Costa Rica has a long history of democracy, and a constitution that protects the social rights of its citizens. The government, commercial, and service sectors function under a well-established economic model and constitutionally declared universal access to services for the population. Historically, Central and South American nations have sometimes undergone rapid social and political changes, and the changes have occasionally been the result of armed conflict. While Costa Rica has had an active political history, it has seldom experienced the degree of volatility felt in similar countries.

During the two decades prior to 2008 when this study was initiated, Costa Rica suffered from what some respondents who were interviewed during this study rather harshly characterized as “bad planning and the introduction of neo-liberal economic policies that have diminished the qual-

ity of services and living conditions.” Regardless of these views, the study team observed that the people generally are well served by basic services, including potable water, electricity, telecommunications, social security, and education. Costa Ricans have, however, experienced a very unequal economic growth, which has increased the social divide, contributed enormously to the widespread poverty, and caused greater social exclusion among the citizens. Under these circumstances, the research team faced the unique opportunity of identifying and studying information access venues and processes in this country that have not been analyzed previously.

The research process was conducted in two phases. In the first phase, which began in 2008, the team conducted a general overview of the country to identify the public access initiatives to be studied and analyzed. The second phase began with a general workshop in Costa Rica, where the participants discussed and reviewed how the

results of the first phase would be analyzed and establish the direction of the second phase. The workshop also focused on the literature review process and key persons identified for interviews, and enumerated ways in which the study results would be organized to guarantee the objectivity of the conclusions. The second study phase included detailed fieldwork across the three venues that were targeted – public libraries, Centros Comunitarios Inteligentes (CECIs, a type of telecenter, although it sometimes operates inside libraries), and cybercafés.

Among the findings to emerge from this investigation, the research team determined that Costa Rican libraries are commonly perceived to be used almost exclusively by students; the majority of users proved to actually be students. The funding allocated to public libraries does not cover the basic needs of these venues. A strong and effective promotional effort is, therefore, needed to bring greater attention to the potential value of the library system. Little has been done on this front, and there are no particular plans to initiate such an effort. Clearly, the librarians and staff in the libraries are not equipped to assume the task without training, adequate funds, and the support of the administrators of the library system.

Because library operating funds are low, the insertion of a CECI inside the libraries has been an excellent means to provide better overall service and to make more and better content available online. The users have been quick to say that the addition of a CECI is a welcome improvement in the libraries. Unfortunately, in several of the instances where CECI venues have been established in locations other than in libraries, municipalities, and similar sites, they frequently have not been able to maintain an adequate level of sustainability. These CECIs do not operate on a self-sustaining model, and, as a result, it is difficult for these venues to survive without the support of some form of parenting organization or institution.

The researchers observed that cybercafés represent a favorable option for users, because they offer more accessible schedules, place fewer restrictions on users, and supply a wider variety of services than users find in publicly funded venues. Consequently, cybercafés are the most popular venues among users in Costa Rica. In addition, there is reason to believe that cybercafés can improve the gender-based inequality and other inequalities that persists in the way Costa Ricans access information and ICTs. The study team noted that cybercafés have the potential to develop improved means to provide information that has great benefit to underserved communities and remote regions.

The study produced key recommendations that can improve the value of the venues based largely on the social impact to be realized when the public has greater access to information and becomes better skilled in using ICTs. It is a recommendation of the study that this and corresponding improvement strategies be part of a public policy that guarantees: 1) the continuity of such support programs, 2) the participation of underserved communities and groups, 3) the collective construction of the tools that will sustain the resultant social gains, 4) access by all the population, 5) the continuing introduction of ICTs, and 6) develop the means through education and training so users understand technologies as something that can help solve daily problems and improve living conditions.

INTRODUCTION

Costa Rica is located in Central America between Nicaragua and Panama, spans 51,100 sq km, and has 4.4 million inhabitants. The country has an enormous natural richness that attracts large numbers of tourists each year, making the tourist industry a highly profitable revenue stream that produces an average of US\$1.7 billion each year.

Culture

The official language is Spanish, although a few other languages are spoken among some of the various ethnic and migratory groups. For example, languages such as Criollo Limonense and Bribri are spoken by small segments of the population. Another small segment of the population speaks some English and these people commonly have some connection to the tourist trade. Costa Rica has a wide range of cultural diversity that stems from the presence of its indigenous people, as well as from Caribbean people and migrants from many countries around the world. Although the official religion is the Catholicism, many other religions are openly practiced in Costa Rica, such as Protestantism, Judaism, and Hindu faiths.

Geography

The geography of Costa Rica, in general, is formed of coastal plains separated by rugged mountains that include more than 100 volcanic cones, many of which are of major volcanic importance. The land rises from sea level on the west at the shore of the North Pacific Ocean and extends to the highest point, the “Cerro Chirripo,” at 3,820 meters above sea level, and descends again to sea level to the east at the shore of the Caribbean Sea.

Government

Costa Rica is a presidential democracy with an elected assembly that functions as a legislative congress and is composed of 57 deputies of who are members of the various legally recognized political parties. The legal system is the responsibility of a supreme court. The president is the head of state and is elected to a four-year term by popular vote under a constitutionally established universal adult suffrage. In this capacity, he appoints a cabinet, as well as the heads of public agencies and the Central Bank. Óscar Arias of the

Partido Liberación Nacional (PLN) took office as president on May 8, 2006.

The nation is divided among seven provinces: Alajuela, Cartago, Guanacaste, Heredia, Limón, Puntarenas, and San José, and the San José province hosts the centrally located capital city, San José. Along with San José, cities in the other principal provinces (Heredia, Alajuela, and Cartago) form the Gran Área Metropolitana, where the central offices of most of the private and public services and prominent institutions are located.

Demographics

Of the 4.4 million inhabitants of Costa Rica, 10.2% are migrants from other countries, and most are from Nicaragua, Honduras, and Colombia.¹ The research team noted that demographic issues have a strong affect on the public’s access to information and ICTs. The population of Costa Rica has a nearly even gender balance, although it does slightly favor males, with 2.23 million males and 2.16 million females. Demographic records state that 27% of the population is under the age of 15 years, and 67.2% is between the ages of 15 and 64 while 5.8% is over the age of 64.² Gender differences are important in the Costa Rican culture, as they have always been, and the gender bias is particularly visible with regard to employment opportunities and wages.

Regional Socio-Economic Inequities

Costa Rica is a small nation, but has a well-designed and broad electrical service grid, as well as widespread telecommunication coverage that offers universal services as prescribed by law. But while this electrical and telecommunication coverage is supported by an extensive distribution network in terms of infrastructure and connectivity, in reality, many Costa Ricans still do not have sufficient access to many much-needed public services.

This access limitation is particularly apparent in two of the most isolated areas in the country. These areas are along the Caribbean coast and the southern Pacific coastal region, where a majority of the black and indigenous communities are located. These regions are two of the poorest and most disadvantaged areas in the country, and are marked by high unemployment rates, far fewer available services, and a very low economic growth. Many of these same conditions exist in the border towns and peri-urban communities that contain large rural and foreign migrant populations.

This situation serves to sharply limit the employment and economic opportunities available to these diverse and migrant communities. This limitation is also reflected in the lack of an integrated and comprehensive development agenda that would aim to provide equal economic development opportunities for all the “Cantones” throughout the nation. Even though public services are “universal” by law, it is also true that underserved groups and communities live under conditions that exclude them from the benefits of services that are readily available to a majority of the population. It is clearly evident that Costa Rica has a concentration of services and employment opportunities in the central areas, while border towns and coastal regions are home to people who must undergo considerable limitations daily in terms of services and opportunities that bear a direct influence on their lessened quality of life.

METHODOLOGY

Costa Rica is one of 25 countries participating in this international study that was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The study placed an emphasis on the information needs of underserved and remote communities.

This research study was initiated in 2008, and the central focus was aimed at venues that provide public access to information and ICTs. The study was conducted in two phases. The first phase was aimed at developing a general understanding of the spectrum of activities that pertain to public access. The researchers interviewed users and key stakeholders associated with the venues and subsequently conducted field visits to gain an initial understanding of the technological landscape, as well as to collect literature pertaining to public access to information and ICTs.

The study placed an emphasis on the information needs of underserved groups and communities, and the degree to which the public is affected by the overall socio-economic conditions, educational levels, inequity variables, access conditions, and historical trends in their ability to access public information. The researchers studied the public access venues selected and the use dynamics found during the fieldwork process and then compiled the salient findings – strengths and weaknesses among the public access venues – and formulated recommendations.

The second phase began with a general workshop presented in Costa Rica to discuss and review how the data collected during the first phase would be analyzed. The workshop also focused on the literature review process, the key persons identified to participate in the interviews, and on the way in which the study results would be organized to ensure the objectivity of the conclusions presented in the final report. The second study phase included detailed fieldwork across the three venues that were selected (public libraries, CECIs, and cybercafés).

Team Qualifications and Investigative Approach

Sulá Batsú was created in 2005 as an associative entrepreneurship based in Costa Rica that brings together the capacities of professionals from different fields who are interested in having a

collective social enterprise. A multi-disciplinary perspective was selected as the means to approach collective processes that are based on the experience and knowledge of the participating groups and organizations. The cooperative organization has a wide range of experience researching the social impact of ICTs. The team worked to design a functional process in which the expertise of the whole team would be applied. The end product is obtained by using processes that reinforce the interchange of ideas and the generation of new knowledge in a way that ensures more objective analysis and integrates different interpretations of the subjects under investigation.

Literature Review

The researchers conducted a literature review to gain an understanding of the existing information related to the issues important to the study. The scope of the documents and their content spanned the Information Society in Costa Rica, ethnicity issues, economy, politics, press freedom, accessibility, infrastructure, connectivity, annual reports of public entities, social conditions in the country, historical trends, existing programs, and NGO reports.

Among the documents reviewed, several were particularly important to this study especially the “Programa Sociedad de la Información y el Conocimiento, PROSIC (2007), *Hacia la sociedad de la Información y el Conocimiento en Costa Rica*.”³ This publication contributed valuable background in understanding the Costa Rican context regarding access to information. The “Decimotercer Informe Estado de la Nación en Desarrollo Humano Sostenible (2007)”⁴ presents an analysis of a variety of variables that include human development, gender equity, education, poverty, economy, democracy, elections, citizen participation, and environmental management.

Venue Selection

For the purpose of this project, three venue types were identified, selected, and studied. The researchers concluded that the selected venue types that best fulfilled the study guidelines were public libraries of the Sistema Nacional de Bibliotecas (SINABI), the Centros Comunitarios Inteligentes (CECI), and cybercafés. These are public access venues that offer general information that can be used by any person with basic reading and writing skills. Public libraries and CECIs are publicly funded venues created to fulfill the information needs of the public in general, while cybercafés are small and medium businesses (SME, from Spanish acronym) that operate for profit in the private sector under a commercial sustainability model and offer their services to any person who can pay the fees. Cybercafés generally offer a wider range of information than other venues and can be accessed more easily than other venues, such as the documentation centers of specialized organizations.

Two venues that were not included in the research are the InfoAgro and CIDREB libraries. InfoAgro maintains a web portal containing information related exclusively to agriculture topics. InfoAgro has a network of office locations scattered across Costa Rica that offer information through traditional channels, but it was believed that the information they retain was too specialized to meet the guidelines of this study. The CIDREB libraries were possible study candidates because they are open to the public; however, these libraries focus on students, and the information offered is oriented to meet the needs of that specific user group.

Inequity Variables

An important aspect of this study required the research team to consider the influence of a number of inequity variables on the ability of the public to access information. The variables included

socio-economic status, educational level, age, gender, location, and, in particular, ethnicity and migration.

Socio-Economic Status

This is one of the most important of the inequity variables that pertains to public access to information in Costa Rica. An estimated one out of every seven Costa Rican families suffers some form of social exclusion, and 14% of all households live well below the poverty level, especially those people who live in rural areas in the southern Pacific and Caribbean coastal regions.

The lower economic strata among the Costa Rican people continue to exist in this state of poverty even though economic indicators show that the country is experiencing significant national economic growth. This data clearly shows that the people at the lower end of the economic scale have not received any significant benefits of that economic growth and continue to live with little hope of any improvement in their quality of lives.

Furthermore, there is reason to believe that the gap between the low-income and high-income segments of the population is rapidly becoming wider. Families suffering social exclusion have far fewer possibilities to improve their position and are much less able to reap the benefits of public services, such as education, health care, and access to information that could help them enormously.

Education

Although studies and surveys indicate that literacy levels nationwide are quite high, the school drop-out rate after the first three years of secondary education stands at about 13%, and the efforts to lower that percentage have not been effective. The working conditions are bad for very young people who hold jobs and who have little or no useful educational background. These young people remain underemployed or are unemployed throughout much of their lives. As the educational

level of an individual increases, so does the opportunity to escape the bitter depths of poverty and vastly improve a person's socio-economic status. In Costa Rica, there is a widely held belief that the public access information venues are only for students and are positioned to make the access to information far more difficult for any persons who are not closely associated with the formal educational system.

Age

The age of the persons who use ICTs and information venues in Costa Rica is significantly skewed towards younger people, and, therefore, becomes an important variable with regard to information access. Few older people frequent the venues and seek the benefits of ICTs. Older people access information and knowledge more commonly through the public media and by word of mouth. Their more traditional practices are not taken into account when initiatives related to information and ICTs are designed and disseminated.

Gender

Gender inequities are an ongoing reality in Costa Rica, limiting access to the broad range of available services and bear directly on the ways in which the population approaches life day to day. The continuing effect is reflected in the low quality of available jobs, poor salaries, lower social security, and labor issues suffered by women. Female workers experience higher levels of underemployment and unemployment and have fewer opportunities to access capacity building processes because they are compelled to remain on whatever job they hold. The almost total absence of even marginally adequate day-care centers often prevents mothers from attending capacity-building programs.

In Costa Rica, women with dependent children are the head of the household in a large proportion of the homes, and single mothers are particularly common. In these instances, these women have

the dual responsibilities of employment and home management. It is not uncommon for young women attending school to become pregnant and be forced to drop out to raise the child while foregoing any more education. Under these conditions, the access to information and ICTs becomes either impossible or extremely difficult, at best.

Location

Much of the Costa Rican countryside is remote, and many of the smaller and underserved communities and rural areas have little or no access to information venues or ICTs. For the purposes of this study, the definition of the terms “rural” and “urban” depart from a more traditional “access to services condition.” Two more location variables were included, and “peri-urban” communities were defined as areas located relatively near the service-access points, but where the resident populations have to leave their own communities to reach those points. Usually, the people in peri-urban communities reside there to be closer to urban areas, where jobs and services are concentrated. Most often, peri-urban inhabitants are migrants who come to Costa Rica to seek employment. “Urban-rural” is used here to define rural communities, where more services are concentrated than are available in smaller villages, and which also share more of the characteristics of urban centers.

The information processes that are available and used by the public are clearly different between urban and rural locations, and are strongly affected by the proximity to services and the very different living conditions in each area. Rural communities maintain more traditional information processes and are greatly underserved from the standpoint of access venues and ICTs. Rural communities most often lack useful technologies and skills, although access to those technologies, and the skills to use them, would be an enormous asset in their daily lives. Few of the people in these areas are aware of how technologies could benefit them. Because this reality is not taken into account when design-

ing proposals and projects, it is harder for people to identify themselves with the new processes or to value information as a tool that can help them improve their living conditions.

Ethnicity

The Costa Rican population features a remarkable diversity in their ethnic origins, highlighting the influence of African descendants, indigenous groups, migrants, Mestizos, European Caucasians, and others. However, the study results suggest that people from some of these backgrounds are not well represented with regard to publicly available information, relevant content, and local languages. There has been little attention given to the wide range of ethnic diversity and the different cultural influences in the various service improvement programs designed by the government. The research team stressed the importance of this variable and how ethnicity has become a major barrier in terms of access to information.

Migration

Costa Rica has long been a bridge route between North and South America. But many migrants who arrive in the country often choose it as a destination, largely because of the location but also because of the nation’s lenient migration requirements that were significantly revised in the decade prior to the start of this study. Much of this migration is attributed to civil and political conflicts and a variety of economic crises in the other Central and South American countries and elsewhere in the world. As a result, Costa Rica has become viewed as a haven to large numbers of people, with a particularly high percentage being Nicaraguan, Argentine, Chinese, Indian, and Caribbean migrants. Migration and its implications have not been a significantly strong part of the development agenda of the country. On the contrary, disinformation and a lack of political will have generated an increasing wave of xenophobia.

Data Collection

The central focus of the study was to investigate and report on venues that provide public access to information and ICTs, and the acquisition of the data was a critical task for the research team. The data collection was divided between the two phases of the study. The study process was governed by guidelines aimed at obtaining a general understanding of the spectrum of activities that pertain to public access. The researchers interviewed users and key stakeholders associated with the venues, and subsequently conducted field visits to, first, examine the technological landscape, and, second, to collect literature pertaining to public access to information and ICTs.

The team went to six communities during the first phase and visited CECIs and public libraries where they obtained information that became the basis of the initial report of their findings. While conducting these visits, the research team used a data-collection model designed and developed by the University of Washington's CIS group, but which was modified to meet the requirements specific to the Costa Rican segment of the study.

In the second phase, the team expanded the scope of the investigation and visited 21 additional sites to gather data to elaborate and validate the findings presented in the first report. The 21 site visits included both urban and rural communities, and, again, the researchers applied the data-collection model. The team included cybercafés in this part of their research.

Interviews of key users, stakeholders, and recognized experts in the field were undertaken, and their responses proved helpful in understanding the actual conditions and the extent to which the public can access information. They described the context of the country's perceived and actual involvement in ICTs and public access venues, provided insight into the strengths and weaknesses of Costa Rica regarding public access, and offered their ideas about the real needs of the public.

The data gathered during the study were presented, along with the opinions and perceptions of those interviewed and the views of specialists in information management, in two separate workshops organized by the researchers.

OVERALL COUNTRY ASSESSMENT

Public Access to Information

The economy of Costa Rica is increasingly becoming tied to the evolving economic logic of globalization, but benefits of that involvement are being realized only by a small segment of the population while a much larger segment is experiencing a downward trend in the quality of life. This imbalance prompted the researchers to comment that with regard to public access to information, Costa Rica seems to have as many barriers as it has advantages.

One scholarly dissertation reviewed during the literature search for this study focused on poverty and the generally low quality of education as interesting indicators of the actual conditions of the information services available to the general public. Costa Rica has been characterized in some quarters as a country that professes to have a social vision that offers universal services for all inhabitants. However, some opposing views, such as this particular dissertation, present the idea that Costa Rica's heralded economic growth does not benefit underserved communities and does not improve the quality of life of much of the population. These same sources point to the people's access to public information, information-related services, and the public services, in general, offered by the government as significant examples of how much of the population is underserved.

Public access venues, such as libraries, do not hold a high priority in the government's development programs, and this low priority fosters the perception among the people of a lack of interest and political will to improve the conditions. This

perception is especially true regarding the introduction of ICTs. The introduction of digital initiatives by the Ministry of Science and Technology (MICIT) also suffers from these planning deficiencies. The latest report of the PROSIC reviewed by the researchers for this study noted that in recent years, there is a trend by the government to initiate very few public policies and strategies that would promote the public's access to information, and the few initiatives that have emerged are isolated and lack any favorable continuity.

In spite of the bureaucratic barriers encountered by the public, the existing infrastructure, connectivity, and well-installed system of libraries are superior to those available in other countries in the region. Reinforcing the library system and giving libraries more autonomy to develop self-sustaining activities would be an excellent way to begin to improve the overall system. Because of the increasingly large number of cybercafés operating in the country, access to ICT-equipped venues is growing easier. However, the economic barriers suffered by underserved communities are still a matter of considerable concern.

Access, Capacity, Environment, and Inequity Environment

The telecommunications infrastructure in Costa Rica covers most of the country, and landline telephones and electrical service are available in nearly all communities. Telecommunication services, including mobile telephony, operate at reasonably low prices that allow most people to use them. This infrastructure, supported by the established public library system and the national literacy level, serves the public moderately well. Nevertheless, the absence of effective public policies, strategic plans, and political will remain huge barriers that impose a strong negative influence on the public's ability to access information.

Appropriate technology is not included to any significant degree in the national information

strategies, or in a way that would improve the quality of life for Costa Rica in general and the underserved communities in particular. Affordability is not a problem when using libraries and telecenters, although it prevents many low-income groups from gaining access to cybercafés, which are the most commonly available venues.

Although CECIs were created to meet the needs of underserved communities, the services offered at these venues are not part of any strategic plan, and the venues have little sustainability. Many may not be positioned to survive over a long period. The full potential of ICTs is not being used to meet the goals of public access venues, where little information in local languages exists, and curricular adjustments are uncommon. The venues do not have specific programs to serve the needs of underserved communities, or to cover a wide range of users. Consequently, the level of use is limited with the corresponding waste of resources.

Costa Rica has a reasonably high level of basic literacy, but when considering more formal education, the country suffers from high dropout rates, especially in secondary schools. This points to a basic problem in the education system that is not well addressed by the administrators. As a direct result of the economic development agendas followed by the last five government administrations, Costa Rica needs to increase the number of bilingual technicians to fulfill the requirements of foreign investment. The implementation of digital technologies has followed a market logic, which leaves underserved communities out of the reach of projects and programs that are meant to serve individuals who will benefit the most from foreign investment.

The technological capacity of most of the population is quite low, even among many of the operators in the venues. By law, all Costa Rican librarians must have a degree in information sciences, and the study results indicate that the requirement is met. However, in terms of technological capacity, and specifically as it relates to

CECIs, librarians are unable to adequately meet the technological needs of the users. Additionally, CECI operators often lack appropriate skills in other areas to serve the venue users.

The way in which people in Costa Rica approach technology is governed primarily by their socio-economic condition, gender, age, and level of education. Costa Rica's culture does not place great importance on developing modes of information beyond the public media and word of mouth, and many people do not recognize a potential value in ICTs or realize how ICTs can help solve daily problems or improve the quality of life. Libraries are largely considered the domain of students and a place to find homework-related information. Most libraries have very little locally appropriate content that would attract users other than students.

The Costa Rican social structure and environment is highly complex, and is marked in much of the country by severe poverty. The poverty level has not improved significantly for many years despite the nation's economic growth. The divide between the highest and lowest ends of the economic scale has also been increasing, highlighting the inequities in the distribution of wealth. Furthermore, the disparity in cantonal economic growth is an indicator of rural/urban related inequities, where the most isolated communities are even more affected by the lack of good-quality services. The quality of the available jobs has steadily decreased during the past decade, and because of the gender inequalities, women are more sharply affected than men.

In a macro-economic context, Costa Rica is deeply affected by international economic and energy crises. The country is embedded in an economic dynamic that tends to increase the divide between the social classes. In this context, indigenous populations, urban-marginal communities, women, children, and migrants are the most affected by the inequities of the economic model. While the laws of Costa Rica provide an excellent framework to protect the rights of underserved populations, the practical effect in the daily lives of the population is quite a different matter.

Information Needs

The survey results show that venue users frequently look for education-related information. But, the results also show that the quality of the content is nearly always low; however, the level of quality increases enormously when the users can use ICTs to access the information available on the Internet.

The research centers of public universities and the documentation centers of many NGOs produce a wide variety of useful material that is not often readily accessible to the people who could benefit most from it. The information in these universities and documentation centers, in most cases, is available to the public, but few people know how to access it. In a few instances, NGOs only allow researchers to access the archives.

A broad category of information related to worker's rights, woman's rights, violence legislation, and civil rights is not easily found in the venues that were studied, and public information that is supposed to be available at the government sites is frequently out of date or simply does not exist. In general, information that could benefit underserved communities is not always made readily available by the authorities and, in many cases, people have to invest a lot of time and effort to find it.

Economic, Policy, and Regulatory Environment

The economic growth experienced by Costa Rica in the past few years has, reportedly, been high. A 6% rate is quoted for 2007, but the benefits of the growth are oddly not reflected in any significantly real benefit for the economically disadvantaged elements of the population. Poverty has remained at the same level for the past decade and points to the widening gap in the already unequal distribution of wealth in the country. Despite the claims of economic growth, the national unemployment rate has remained at a consistent 6% for at least the past ten years, and the GINI coefficient grew to 0.420 in 2007.

The access to information and ICTs is greatly affected by the economic inequities that create correspondingly related problems, such as educational and literacy deficiencies and inadequate digital services and capacities that reinforce other cultural phenomena, such as the gender inequities. This condition, combined with the lack of effective strategic planning and social vision initiatives, very nearly assure the failure of digital implementation and other technological initiatives, and excludes people from gaining the benefits of inexpensive and easily accessible information. Because underserved segments of the population do not have a realistically ready access to information and ICTs, and do not consider it a priority, the real social appropriation of both is very difficult.

In this scenario, the Central American Free Trade Agreement (CAFTA) represents an additional new barrier in terms of universal access to telecommunications, intellectual property laws, and social development. The implementation agenda promoted by the present Costa Rican government affects the equitable economic growth of the country and stimulates the inequities among different segments of the population. The combination of these factors thereby increases the divisions in the population and makes it more difficult for the underserved communities to gain access to information and ICTs.

Although the actual regulatory framework is said to facilitate the communication processes, new CAFTA contexts will, in time, drive legislative changes in many areas and favorably affect a real access to information. This situation, added to the lack of political will and long-term vision programs (reflected in the absence of public policies on information and communication), identifies the deficiency of strategic planning where social priorities are not considered. Isolated initiatives, devoid of methodologies oriented towards a real social appropriation of information processes for human development, characterize the actual conditions of Costa Rica's overall environment.

Collaboration Practices

The Estrategia Siglo XXI is a network of Costa Rican citizens who have worked in public administration or in private and international organizations. They submitted a proposal that consists of a national development agenda that includes topics related to education, science, and technology. The project started with the support of the CR-USA Foundation, and is directed by Jorge Manuel Dengo and Franklin Chang. This group envisioned a study composed of three parts: a diagnosis of the country, a strategic vision, and an action plan (<http://estrategia.or.cr>). Members of this non-government alliance presented the project to the national government's council at the beginning of 2006, and the council became a collective partner with extensive powers in proposing public policies. Other collaborative practices are more closely related to ICTs.

According to information offered by the MICIT, the CECI initiative will take advantage of close collaboration among ICE, MIPRO, INA, Correos de Costa Rica, local governments, cooperatives, the Red Cross, community associations, libraries, NGOs, banks, and firefighter stations. It is not precisely clear how the alliances will work, nor if signed commitments with any of these institutions already exist, but the research team for this study was able to identify some of the alliances as the fieldwork progressed. For example, there is an established collaborative practice between MICIT and UNED (one of the four public universities) to create CECI laboratories inside the university headquarters facilities at their locations around the country (<http://www.micit.go.cr/Noticias/index.html>).

The Public Education Ministry (MEP) – the Culture, Youth, and Sports Ministry (MCJD)– the Science and Technology Ministry (MICIT) alliance is cited as a particularly important opportunity for collaboration that is not presently being used. This group represents the three ministries designated to work on capacity building, education, and development programs. The MEP (Public

Education Ministry) has representatives all over the country, not only in the local governments, but also in schools and school libraries. The Culture, Youth, and Sports Ministry (MCJD) manages the national library system (SINABI) as well as the “Houses of Culture” throughout the country. The Science and Technology Ministry (MICIT) is responsible for ICT subjects. Ironically, these three ministries do not have any education network or collaborative project oriented to improve community access to information. The members of this alliance are strongly motivated to reach the goals proposed by their respective ministries, and when those goals are closely related to the goals of the other agencies, they often duplicate the efforts because of a lack of communication among them.

Buzz Factors

There is a stark contrast between the government’s policies and what the public considers to be attractively favorable, or “cool.” In general, users consider places to be “cool,” when those places have interactive learning processes where users can gather to enjoy, develop, and share activities. Libraries offer some of these features, but, in general, the conditions of use are more tightly controlled by previously established conditions (silence, limitations on use, and lack of resources).

CECIs also seldom offer these more attractive kinds of possibilities to users. Community members do not have the chance to participate in interactive learning processes, or to use the computers in ways other than the uses specifically stipulated by the MICIT and the operators. Unlike cybercafés, where there are fewer restrictions and users have more opportunities to share their knowledge and develop new ways to learn, CECIs are more restrictive. These issues have not yet been analyzed or evaluated by the government, and all of the new proposed initiatives fail to consider the social component and inherent value of information and ICTs.

Legitimate Use

The definition of what is considered “legitimate use” is a function of many socio-cultural factors. Because all of the educational programs answer to ideological agendas, the information offered at public access venues that are managed by state institutions are the result of a selection logic that could be interpreted as censorship. From learning programs to reading and information searches, all the processes are subject to strict information control. Those people who serve as the information managers are products of information-science schools and are steeped in this control logic, reflected in their professional careers.

Adult centrism is a second important factor that is closely related to the information-control issue. This centrism is a barrier to open public access to information. Within a controlled venue, the criteria stated by the operator/administrator determines the uses of the information, and, according to that person’s perception of what is “legitimate,” restrictions on use are either imposed or removed. In general, user age has an important influence on the notion of what constitutes “legitimate” use. Adults frequently consider Web 2.0 tools as entertainment, and do not accept the social or educational uses attributed to them. In contrast, younger people understand and appreciate Web 2.0 tools and consider themselves more technologically knowledgeable.

Shifting Media Landscape

Web 2.0 is emerging as a somewhat controversial topic. No strategies, productions, appropriations, or opportunities based on these tools were observed in any of the venues visited. Different media, including audiovisual materials, theater-centered information processes, and other dynamics are part of the effort librarians use to promote culture and libraries in their communities. Music, poetry, and reading workshops are used as part of the cultural extension processes of the libraries

around the country. Different topics are used to develop activities, and it is usual to find activities that are related to specific times and dates, such as library month, mother's day, water day, and other similar dates.

The approval of the CAFTA-RD trade agreement drove important changes in terms of available services, access to telecommunications services, and economic growth for Costa Rica. No conclusions have yet been made, but many parties have noted the changes and are interested to see what this factor will bring to the information-access environment. Many people consider these changes to be the most important aspect affecting the media landscape because they speculate that the changes represents the privatization of telecommunications services and will usher in a big change in the information-access processes.

VENUE ASSESSMENT

Overall Venue Assessment

The three venues selected for this study are public libraries, CECIs, and cybercafés.

Public Libraries

Costa Rican public libraries are organized as a national system that includes 57 libraries located throughout the country, with the national library located in the capital city of San José. The present public library system was created in 2000, but its history goes back to the creation of a national library in 1888. The majority of the public libraries were created during the second half of the twentieth century, and the entire system is a part of the "Ministerio de Cultura, Juventud y Deportes," which allocates the operating and maintenance funds for the library network.

Although the coverage of the system is widespread, there are not enough libraries to serve the needs of the country. Border towns and other

isolated communities very rarely have a public library. The same is true in the indigenous areas, where some access to information is available through independent organizations, public universities, and NGOs. The budget allocations are universally inadequate to meet the needs of the facilities. This problem is compounded by the typical bureaucracy of public institutions, and affects the delivery of services and the quality of those services that actually are delivered.

Out of date collections, very limited availability of ICTs, operating schedules that prevent many potential users from visiting the venues, and other failures are common conditions among the public libraries. Other factors, such as the very limited creation of relevant local content, the limited participation of the communities in decision-making processes, and the student-focused orientation have turned the libraries into unpopular places and reduced their importance as venues for access to information.

CECI

CECIs are the telecenter proposal of the MICIT for the current administration. The program features a connectivity-infrastructure orientation that has been common in Costa Rica for the past 15 years. A strategic feature of the program also seems to be its biggest weakness. Because communities alone have to administer, maintain, and manage the use of the CECI venues without higher government support, the CECIs have little chance of survival, especially since self-sustainability is not included in the program's design. CECIs that have greater possibilities for success are those located in public libraries. The initiative was born as an isolated program of the MICIT, which has been trying to establish strategic alliances with other public institutions, such as universities and public libraries. At present, there are 104 CECIs operating nationwide, and the goal for the current administration is to reach a total of 300.

The individual venues are most commonly a technological platform composed of six to ten computers with Internet connectivity plus a capacity-building program (although none are currently in place) designed to diminish the digital divide by reaching underserved communities and individuals, such as rural women, farmers, and students in isolated communities. Because the program is not well organized, it has been difficult for it to reach its goals.

Cybercafés

The research team found it difficult to obtain accurate data for cybercafés, and there were no records available to help the team compile a detailed profile. No previous studies exist, and the venues are springing up all over the country, encouraged by the very limited number of governing restrictions. Because Costa Rica is a popular tourist destination, it is easy to find a cybercafé almost anywhere in the country, and nearly all have high connectivity and reliable electrical service.

The cost to users varies from venue to venue, and the most expensive sites are strategically located in the areas most popular among the tourists. Cybercafés are often family operated or operated by a few friends. They are small enterprises, and this is reflected in their rapidly increasing distribution around the country. Cybercafs are not only located in the centers of towns or in commercial areas, but also are found in neighborhoods and near schools and universities. Many cybercafés are just a commercial initiative of entrepreneurs who already operate a grocery store, a small bazaar, or other small business, and find a profitable cash flow by fulfilling a need in their community for an Internet connection.

Cybercafé venues have more flexible schedules than libraries or CECIs, and are often open at night, which makes the access to information easier for users who have daytime responsibilities. The cost to use the facilities and services is generally quite low, from about US\$0.28 to US\$1 dollar

per hour, depending on the location and the target audience. Some operators establish fees based on the social class represented in the neighborhood, the presence of private universities nearby, or the type of traffic they receive. Venues located at popular tourist spots are the most expensive. When the local population near a venue cannot easily afford to have a home connection and do not own a personal computer, cybercafés are a practical alternative.

Access, Capacity, Environment for Venues

Public access venues are widely distributed across the country, especially cybercafés. Public libraries alone are not able to serve Costa Rica's 4.4 million people adequately, and a few municipalities have their own libraries that work closely with the SINABI libraries. The differences between the two library categories often make cooperation between SINABI and the municipalities difficult, although some of the SINABI libraries operate in a peer modality and receive funds from both sources. Nevertheless, it is still difficult to serve all segments of the population, especially those people living in isolated rural areas and border towns. Though many libraries are located in rural areas, access to them is often difficult because the libraries rely on existing infrastructure, such as schools, churches, community centers, and municipalities, and few libraries are located in the distant reaches of the rural regions. Consequently, for some people, it becomes more difficult to reach the venue.

CECIs have many of the same difficulties and issues as public libraries regarding coverage and services. Many communities that need a CECI do not meet the requirements necessary to obtain one, and are automatically excluded from the program. CECIs have a key operational concern based on their lack of sustainability and limited human resources. This issue is often compounded when an operator has a separate fulltime job and can

only open the CECI for a couple of hours each day. CECIs located in public institutions, libraries, and municipalities do not have this problem and remain open on the same schedule as their hosting institution. Cybercafés operate within local economic dynamics that often make the services they offer more appropriate to the users than the services offered in CECIs.

For the past twenty years, Costa Rica has focused its economic initiatives toward integrating the country into the global market competition, stimulating foreign investment, and attracting international companies to generate new jobs, but these actions have not produced any sustainable increased economic improvement for much of the Costa Rican population. For that reason, local entrepreneurship has become a workable option for many people seeking some greater degree of financial independence and an improved quality of life.

Small enterprises and family businesses are common in Costa Rica, and cybercafés are an excellent example. There are no franchised cybercafés in the country, and this dearth of franchises serves to increase competition among small enterprises, especially in areas where several cybercafés are located in the same street or neighborhood, as is often the case near universities. The operators strive to offer faster connection, lower prices, international calls, and other services, and the venues are often combined with other small-service businesses, such as a restaurant, hardware store, photocopy shop, or bookstore. The makeup of any given venue depends on the demands of the users and the number of venues concentrated in the immediate vicinity. Additional services, such as web cams, microphones, and CD burners/players, are rapidly becoming common, although some cybercafés continue to offer only an Internet connection.

Affordability is the controlling issue governing public access to information in cybercafés. While the income level of many people is sufficient to allow ready access to the venues, there is a huge

segment of the population that is financially unable to use the services, or to take advantage of the opportunities offered in cybercafés. In many cases, people accessing information in CECIs are not satisfied by the quality of the services offered there, but do not have the ability to pay for the services at a cybercafé. While cybercafé fees are generally reasonable, many people are still unable to afford access.

In three of the venues visited by the researchers, the capacity issue posed problems, and there is limited social application for the information and ICTs. In the publicly funded venues, this capacity issue happens because of a lack of strategic planning that includes a social vision. A well-designed and activated social vision is seen as the vehicle to fulfill the needs of users and to drive the development of locally pertinent content, while including the local information processes in the public agenda.

In cybercafés, the private entrepreneurship orientation of the venues does not consider social needs, but, rather, focuses on the sale of services for profit. It is difficult to develop capacity building processes that include all concerns, especially within a social and regulatory environment that does not stimulate public access to information, and which sharply restricts the improvement of the venues and their services. Costa Rica has a very complicated economic dynamic that works against the venues. The publicly funded venues cannot rely on enough support from the governing agencies, while the cybercafés are affected by the local and regional economic crises that negatively influence the poverty level. Local SMEs are struck by the impact of unequal economic growth that hinders self-sustainability and by the new economic model that benefits big companies but not small, local entrepreneurs. This economically imbalanced environment harms the venues and users and prevents the development of new processes and technologies.

Revenue Streams for Publicly Funded Venues

The lack of transparency in public institutions is reflected in the absence of budget information on the web pages of the “Gobierno Digital” initiative, and also is seen when looking for information in other sources. The research team found it difficult to locate and retrieve precise and accurate information related to budgets and financial resources, especially for CECIs. The team contacted the MICIT on several occasions, but the MICIT did not respond. The ministry web page does not include any mention of funds, or what their sources might be, who administers them, or how the funds are allocated and distributed.

This situation was also true for the SINABI, which presents very little related information on its web page. Public libraries are the responsibility of the MCJD; it is also difficult to locate their funding information. The team did, however, locate some financial data related to the annual budgets and expenses for the libraries, but were never able to identify information regarding the distribution and administrative processes.

CASE EXAMPLES

Hatillo Public Library

This library is one of the largest in the entire library system, and is located in a peri-urban community that has diverse social concerns. Hatillo is one of the marginal communities located at the periphery of San José, and experiences occasional violence, frequent delinquency, and high dropout rates in the schools.

The public library is part of a community effort to help at-risk youth, but lacks enough funds to expand the available services or to introduce more interesting and appropriate activities. The library is a destination for students in the community to do their homework and to study for tests. To promote

the site and reach out to the community, the library sometimes shows movies, and the infrastructure is available to the community to develop other activities. This library is a good example of the potential that exists within the library system to serve the community well if supported by political will and given appropriate means to achieve sustainability.

CECI in Cartage

According to the MICIT, CECIs are an initiative aimed at overcoming the digital divide in rural communities; however, this CECI is located in the greater Cartago metropolitan area and in the Cartago city center. For anyone seeking the venue, it is difficult to recognize the site. It is located on the second floor of the building and does not have any signage to identify it as an MICIT CECI. Inside the venue, the only access control is a notebook where users write their names, and no one is present to assist with any form capacity building. This CECI looks more like a cybercafé, except that there are no fees to use the computers. The person in charge works in a small office next to the venue and must rely on the municipality’s computer technicians for any technical support. Users do not have any way to take advantage of any possible social contribution from the venue and rarely have a clear idea of what a “CECI” is. Many users think the computers are part of a program developed by the municipality alone and are completely unaware that CECIs are a program of the MICIT. After visiting this site, the team felt that the community simply does not know what the venues can provide and thinks it exists primarily to serve students.

El Balcón Cybercafé

This venue is located in the midst of an urban-rural community called San Isidro del General. This venue has more than twenty computers and also sells equipment and offers a range of other

services such as faxes, international calls, scanners, and printers. It remains open to the public from 9 a.m. to 9 p.m. Monday through Saturday, and is visited regularly by university students and tourists. Users pay an hourly fee of 350 colones, which is considered high for a cybercafé, but the owner claims he receives many visits a day, and the business works well for him. Although it was never stated, the higher fee may also be a reflection of the tourist traffic through the venue. There is anecdotal evidence that the users rarely use social networking tools, Web 2.0, or online games. The owner said he thinks that his customers use the venue mostly to look for information, complete school homework, use the printers, and burn CDs.

Comparative View

There are a few similarities between the public libraries and the CECIs, particularly with regard to the environment, policies, and regulations. Government ministries administer both types of venue, and this introduces more bureaucratic involvement into their processes, and forces them to depend more on the government's decisions and procedures. None of these venues have a self-sustainability mechanism for support, and they depend on budgets that are inadequate to meet the needs of users or to provide additional services. Their daily operating schedules prevent many users from accessing the venues. Most of the venues maintain the long established traditional business operating hours from 8 a.m. to 5 p.m. or from 9 a.m. to 6 p.m., when many potential users are working or attending classes. The strategic planning among these venues never considers the user dynamics or information processes; consequently, the venues are less attractive to many users and potential users.

Libraries have a more organized structure that actually benefits from including a CECI. Having the computer array available represents a very important improvement for libraries because the low level of library funding does not permit

the acquisition of new technological tools any other way. The CECI gains a bit more sustainability and support by being located in a library where the library staff assumes responsibility and derives the benefits of having the computers present. Collaboration between the libraries and the CECIs is a good option for these two venues because of the potential of ICTs to facilitate the access to information and to fulfill the needs of libraries by providing updates and improving the service level.

Cybercafés are a more accessible venue in terms of schedules and information processes, and also because there are fewer limitations and the information is disseminated more easily. They have the potential to become social vision venues for the population, including many people who cannot afford the access fees. By developing dynamics that benefit both the SMEs and the users, the government could take advantage of a well-distributed venue network that provides good coverage and valuable services.

All three of the venue types visited share a general lack of appropriate and practical capacity-building initiatives, particularly as they apply to collective construction and social applications. The users do not participate in the development of the processes, and their needs are not taken into account when access strategies are developed. This situation is unlikely to change in the foreseeable future.

SUCCESS FACTORS AND RECOMMENDATIONS

The study determined that more and better information is needed across many subject areas, but more than information itself, the nation's population needs to understand how the access to information can help them to improve their quality of life. Furthermore, they also need to find ways to become involved in the empowerment processes and to acquire the ability to identify information

needs and the opportunities to fulfill them. These factors must be focused to serve the people and to inform them on how they can benefit from the available information.

In the past, ineffective short-term social vision programs have failed to help Costa Rica's population, largely because a lack of continuity has fostered a culture of unplanned "immediate processes" based on weak designs and methodologies used as palliative solutions to specific situations. It is evident that information has not been included in the government agendas for Costa Rica, and the very limited attention given to it does not foster the policies needed to improve the services offered in public access venues, nor does it guarantee the success of initiatives designed to meet the needs of the population.

Local content is not being created under a participative logic where communities not only have a voice in identifying needs, but also in working to develop the solutions. Social participation is needed to guarantee the quality of information solutions designed for communities and to create public policies that fulfill the needs of the population. For the most part, it appears that the majority of the people know what they need, and this must be positioned prominently in any agenda. The creation of popular, inexpensive, or free venues is the first step needed to solve the critical needs of underserved communities and groups.

Many Costa Ricans regularly use the services offered by cybercafés because these venues provide valuable and practical services. Conversely, libraries are not a correspondingly good option for many people because the content and services offered there are of low quality and do not fulfill practical and up-to-date information needs. Libraries are becoming more and more a focus point for students, reinforcing the public's long-held perception that libraries are "only for students." With poor promotion and little to attract users to

libraries, they tend to become an obligatory venue for students only, where they go to complete homework assignments.

CECIs serve a different purpose in the communities when located within libraries; they attract other segments of the population who otherwise would not ordinarily go to a library. Some have said the attraction has to do with the fact that CECIs provide free Internet connection. But CECIs in libraries also deliver added value because the ICTs support information processes and give other options to the users.

Underserved communities are excluded from this dynamic primarily because of the economic barrier. Although, in some communities, CECIs are becoming a focal point for those who do not have other access options, it is not common for these venues to work specifically to meet the needs of underserved segments of the population. The coverage of CECIs and libraries is poor when compared to the services offered by cybercafés.

ICTs have proved to be an excellent tool for meeting the information needs of excluded communities in certain instances. But if they are simply presented to people without relevant content, capacity-building processes, and strategic planning, ICTs will never realize their potential. In Costa Rica, ICT-based programs have not been designed to meet the user needs and are not seen as a tool. Planning for any ICT-related program or project must take into account the human factor, and must be designed to become the key to success for any project. Costa Rica needs well-designed strategic planning and an honest evaluation of each action involving ICTs. Responsible parties and agencies must definitively determine what works and what has failed and then identify the reasons for the failure. The identification of good practices that can be reproduced in different communities, the collaborative reflection about what the real information and ICT needs of diverse

communities are, and the development of public policies that guarantee the real access for all the population are vital factors that must be prioritized in future agendas.

To facilitate citizen participation, where all the forces of society are equitably represented, it is necessary to address a participative discussion that focuses on the real needs of communities and identifies the best ways to work on them to obtain high-quality results.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the research and the analysis of the data gathered during this study, the following conclusions and recommendations emerged:

- Conduct inclusive discussions where communities and underserved segments of the population participate and are encouraged to introduce constructive criticism.
- Establish public policies that guarantee the long-term successful operation of the different initiatives.
- Thoroughly understand that indicators, such as “the number of computers per each 100 inhabitants,” do not contribute qualitative information about the social appropriation and benefits of ICTs.

- Monitor and evaluate each means of access to information and ICTs to understand what needs to be changed and what can be reproduced in future programs.
- Collaborate with other key participants (NGOs, international corporations, funding programs, and the private sector) to avoid the duplication of effort, and to avoid diminishing the initiatives that are already in place.

ENDNOTES

- ¹ Retrieved on August 19, 2008 from [http://siteresources.worldbank.org/IN-TPROSPECTS/Resources/ 334934 – 1199807908806/4549025–1214334216239 / CostaRica.pdf](http://siteresources.worldbank.org/IN-TPROSPECTS/Resources/334934-1199807908806/4549025-1214334216239/CostaRica.pdf)
- ² Estado de la Nación (2007), social statistics.
- ³ Programa Sociedad de la Información y el conocimiento, PROSIC (2007). Hacia la sociedad de la Información y el Conocimiento en Costa Rica. San José: Universidad de Costa Rica.
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Chapter 14

Public Access ICT in Colombia

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EXECUTIVE SUMMARY

Geography and culture make Colombia a rich and diverse country. Nevertheless, this country has a long history violence related to politics, insurgency, paramilitary groups, and drug trafficking. In spite of important human developments in the last decade, poverty, exclusion, and governability rates are still critical in this South-American country. These country characteristics have been critical to the way people communicate and access information, and they have also marked the way in which Colombians use and acquire information and communication technologies (ICTs).

The progressive nature of government public policy and investment in the communication, education, and cultural fields has favored public access venues in Colombia. Nevertheless, it's the

decision and commitment of social organizations and community-based actions that have been the real development axes of the public access venues in the country. This situation has developed because people have found ICTs an essential tool for individual and social development.

Public libraries, telecenters, and cybercafés, constitute the best training and ICT access opportunity for marginalized and vulnerable populations that still make up a high percentage of all Colombians. These access venues represent not only a communication, information, education, and leisure information alternative, the venues are also a gathering and socialization space, a locus for a changing relationships between the State and citizens, and also for enhancing daily life. They also represent an important alternative for employment, entrepreneurship, and personal and professional development.¹

INTRODUCTION

Even though internal armed conflict has marked recent Colombian history, Colombia shows extraordinary economic stability and steady human-capital growth, which places it among the countries that lead the region's development. Located at South-America's northwestern corner, and in a tropical zone that touches the Equator, as well as being half way between both continental poles, Colombia's location is geostrategic and favors commerce and communications. In addition to an incalculable natural diversity, as well as a wide range in climate and ecosystems, Colombia has resources for commercial development due to its proximity to the Panama Canal and to long coastlines that give onto the Pacific Ocean on the west and the Atlantic Ocean through the Caribbean Sea. All of these factors allow Colombia to be the entrance gate to South America and to have ports that face the rest of the Americas, Europe, and the Pacific Rim countries.

The effects of armed violence and internal conflict, which has extended over more than six decades, as well as drug trafficking and associated crime, have certainly had a significant influence on human lives, the environment, and the slow economic and social development. Nevertheless, foreign investment and some industries—like mining—have grown dramatically. According to the IMF Western Hemisphere Department's report, "Regional Economic Outlook: the Americas," in 2010, the Colombian gross domestic product (GDP) will be better than the performance of the continent's stronger economies (i.e., Brazil, and Venezuela, US, Mexico,).

All in all, however, the fruits of progress have not resulted in either a poverty decrease or in the adoption of a human focus on Colombian development. In fact, Colombia is one of the most inequitable countries in South America. According to data from the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC), government social expenditure has

failed to meet peoples' demands or protected vulnerable groups. Hand in hand with the economic-growth data are the data about poverty, which affects nearly 46% of the population, with 17.8% living in extreme poverty.

With 45 million people, Colombia has the third largest population in Latin America and a total area of 2,070,408 square kilometers (1,141,748 square km of continental territory and 928,660 square km of sea), with a density rate of 42.7 (36). As the rest of Latin America, Colombia is proud of its culture, which combines local folklore with colonial inheritance. Colombia has a long tradition of right-wing governments with a capitalist free-market system. This process — called "economic liberalization"— started in the 1990s with President Cesar Gaviria, who passed several constitutional amendments that led to a new Constitution, opening the way to a globalized market and to a progressive decentralization.

Although the internal armed conflict has not reached the status of a civil war, Colombia has suffered violence for decades: Bipartisan violence since the 1950's, insurgent groups since the beginning of the 1960's, the strengthening of drug cartels since the 1970's, as well as complex alliances between drug cartels and illegal paramilitary groups since the 1980's have marked the recent history of this South American northwestern corner.

Colombia is ranked second in the world in terms of internally displaced persons (IDP). According to official figures of the Internally Displaced Persons Information System gathered by the Colombian Presidential Agency for Social Action, 3,303,979 people have been violently displaced in the last decade. The real figures could be higher. Human Rights and Displaced Persons Consultants (CODHES, in Spanish) — a non-governmental organization — denies the accuracy of these figures, especially in the area of crimes related to forced displacements.

The UN Millennium Development Goal's last report places Colombia in the 77th place out of 182 countries; although the figures show some

improvement, there is still a long way to go to eradicate poverty (for example, life expectancy at birth is 72.7 years, adult literacy is 92.7%, and the standard of living measured in terms of a better per-capita income is US\$8,587 annually). When talking about development rates in this way, Colombia is classified in an intermediate place, which means it can advance and extend access to many services, but it still has to improve in providing fundamental social rights. This perception is shared by *The Economist's* Democracy Rate, which lists Colombia as a defective democracy and places it in the 66th place out of 167 countries (2008); it also says democracy could become complete provided Colombia implements measures to strengthen its institutions.

Methodology

Researchers from *Universidad Icesi de Cali* and *Fundación Colombia Multicolor de Bogotá* did this research with a team of local allies. This research included a documentary review that compiled 131 documents organized into five topics: national and international policies, national scenario and the three public access venues: public libraries, telecenters, and cybercafés.

In order to gather information, the regional distribution criteria of the *Diagnóstico Nacional de Televisión Comunitaria*² (National Communitarian Television Assessment) were taken into account, and five zones that reflect the country's diversity were chosen based on cultural and demographic criteria: Caribbean Coastline, Santanderes, Antioquia and Coffee-Growers Axis, Central Zone, and South-Western Zone. In all of these zones, fieldwork was performed in a capital city with a high population density, and in a municipality (town) with an intermediate density. A regional conglomerate sample was defined according to the data of the 2005 Census, which was performed by the *Departamento Nacional de Estadísticas* (Statistics National Department, DANE).

Several tools were used in this research: a survey to scan users of public access venues, semi-structured interviews of experts, semi-structured interviews of users of public access venues, structured interviews of public-access-venue operators³ and focus groups with operators and users in six different localities in the country.

Thus, 1,182 surveys were applied to ICT public-access venue users nationwide, paying attention to gender-equity criteria, inclusion of different ages, and inclusion of different ethnic groups (indigenous and African-Colombian). Surveys were applied by local surveyors in libraries, telecenters, and cybercafés at different times and on different days. There were ten interviews of experts, which were organized in two groups: six ICT scholars linked to universities, government organizations and NGO's (most of them lived in big cities: Bogotá, Medellín, Cali), and four opinion leaders involved with activities linked to communication and information in a community in each region.

A hundred structured interviews were also applied to operators: twenty in each region, which guaranteed a balance between capital cities and municipalities and the three types of public access venues— libraries, telecenters, and cybercafés. Questions around gender equity, different generation representation, and ethnic diversity were a key part of these structured interviews. In the ten personal interviews with operators, questions were asked about approaches, focus, and use of ICTs, paying special attention to personal experiences when learning about and using ICTs. The operators were also asked about the ability of ICT to be transformative, as well as their motivation for use, or vision of ICTs for development. There were six focus-group workshops: one in each region of the country. Approximately twelve community members participated in each workshop, which included users and operators or actors of public-access ICTs in the community. Special attention was paid to gender equity, different ages, educational levels, and socio-economic

strata, as well as to questions around the inclusion of people with disabilities and from ethnic minorities—if this question was appropriate to the region. The main purpose of these workshops was to facilitate structured conversations that would build a scenario of the community information and communication requirements and practices, with a particular focus on the role played by ICT public access venues in community development. Another goal was to help understand interactions between different public access venues, mobile telephones, and community radio, as well as local perspectives on their benefits and impacts.

Public Policies in ICT

Connectivity data in Colombia reveal a growing government concern around passing public policies that will promote social information and communication technologies (ICT) use and appropriation. The Internet's dramatic breakthrough and growth, as well as a 76% increase in the telecommunications industry's income between 2006 and 2009, were developments acknowledged by the last UN Conference on Trade and Development (UNCTAD), which placed Colombia in fourth place globally. According to ICT Ministry figures, Colombia might be moderately optimistic about its progress in relation to ICT given its recent track record of accomplishments: the ICT Act, the establishment of the Spectrum National Agency (*Agencia Nacional del Espectro*), the actual 16-year-old mobile telephone market, the relationship between digital television and mobile telephony, choosing a digital-land television standard, the CNTV granting of a third television channel, and the ICT development cooperation agreement between France and Colombia.

Mobile telephony has increased 70% in Latin America, but 90% in Colombia, a fact that places Colombia in first place in the region, according to a private survey on consumption carried out by Latin Panel Consultants in 9,000 homes in 16 main cities of 15 Latin American countries.

In 1999 the national government implemented a program called Compartel (Sharing Telecommunications) as a solution for providing Colombians equitable access to telecommunications, both in rural areas as well as in low-income urban areas. The government effort assigned an significant amount of the budget to the establishment of rural community telephony access venues in isolated *corregimientos*,⁴ *inspecciones de policía*,⁵ *caseríos* (sparse villages) and *veredas* (rural settlements), as well as to replacing and widening social telephony networks, and providing Internet access nationwide for public schools, hospitals, and military garrisons as part of the connectivity program and the strengthening of the social telephony program. In that same year, two important programs were created: the first one, *Computadores para Educar* (Computers to Educate), which fosters a massive donation of no-longer-used computers to public education institutions by public and private entities, and, the second one, *Agenda de Conectividad* (Connectivity Agenda), which seeks to disseminate information technology (IT) use among the masses in order to increase competition in the country, to modernize the government, and to socialize access to information.

Colombia is one of the countries in the region that shows a major development in electronic government (e-Government), according to an annual follow up performed by Brown University in 198 countries. This survey ranks Colombia in third place in Latin-America — 22nd place out of 198 countries — just behind Brazil and Mexico. This development ranking is based on the basic information about all the municipalities in the government's websites, but especially drawn from the online Government strategy with more than two thousand processes than can be performed on the portal www.gobiernoenlinea.gov.co.

One of the government's goals is to achieve, by 2019, "comprehensive intercommunication and information between all Colombians, using ICTs efficiently and productively, in order to improve connectivity and social inclusion."⁶ The 2008-

2019 Information and Communication National Plan establishes a vision for the future, which the Telecommunications Act completes. Additionally, the Ministry of ICT has more political to enable project development more telecommunication entities — organizations, universities, and companies — are becoming interested in creating telecenters, with a strong capacity for training and support to local users and groups.

When making an assessment of the strategic policy called, *Connectivity Agenda*, which aims at widening access to all Colombians, we can see the access is still scarce. In response, the ICT Ministry itself has set the goal of making “regional and department efforts to increase communications in the regions where relative growth has been smaller.”⁷

In 2005, the National Council on Economic and Social Policies (CONPES) presented a document called, “*Social CONPES 091: Colombian Aims and Strategies to Achieve the Millennium Development Goals (MDG) – 2015.*” Regarding ICT topics, the document establishes that: “Colombia shall achieve mobile and land telephony and Internet coverage, in cooperation with private industry, according to the country’s economic development goals.”⁸ All in all, Millennium Development Goals (MDG) have been adopted in national, department, and local development plans.

A favorable element of public policies is the continuity of programs despite cabinet changes in the government. Such programs as Compartel, e-Government, community and non-domiciliary rural telephony projects, as well as Computers to Educate, have survived, even though there have been focus modifications and strategy adjustments.

On the other hand, ICT public policies have achieved the implementation of associative work, and many organizations have been interested in participating in the promotion of actions to support the establishment of public access venues, as well as furthering social appropriation plans.

From Connectivity Access to Social Appropriation

The focus of ICT public access policies has changed throughout the decade. These policies used to be centered on providing universal access through infrastructure projects, and on supplying computers and ground-based satellite antennae in order to guarantee Internet connectivity; new policies now focus on the need to guarantee effective use of technology.

The Colombian experience shows that it is not enough to guarantee access to ICTs, social appropriation must also be considered. One of the most important challenges is to create skills and social usages that will allow content production. Until recently, the goal of closing the digital gap was based on supplying computers; there is now, however, a clear focus on directing financial and training efforts to social-appropriation goals.

The topic of public policies oriented exclusively towards connectivity is being left behind. Once computers are supplied, there is an immediate need to produce content and training strategies that engage ICTs in a comprehensive and cross-sectoral way, with the purpose of promoting all aspects of human development.

An example of this new focus is in the implementation of “digital territories,” cities that have begun a process of ICT social appropriation, such as in the municipalities of Digital Castilla La Nueva, Digital Medellín, or Digital Sogamoso.

The Ministry of Communications has supported the creation of nine digital territories around the country since 2007, with an investment of approximately US\$3.2 million. This strategy seeks to promote the use of ICT in communities, improving the way people live, educate, work, govern and buy using ICT. As part of this initiative, eight “intelligent classrooms” were set up for as many educational institutions, as well as 25 cabins with computer, printer and broadband Internet.

CHARACTERISTICS OF LIBRARIES, TELECENTERS, AND CYBERCAFÉS IN COLOMBIA

Telecenters

Even though there is not an exact estimate of the number of Colombian telecenters, the *Red Nacional de Telecentros* (National Telecenter Network) — supported by Colnodo⁹ — has counted 1,062. This figure is lower than the 1,490 of the Phase I, II, and III Compartel telecenters established by 2007.

One of the problems, when counting telecenters, is the great variety of institutions and organizations that design and house them. In Colombia, telecenters can be established by government organizations through *national programs*, like the ones developed by Compartel or the Digital Territories; or through *department programs*, such as CETEJE telecenters in the Cauca Valley (as part of a *Juventud* policy, which promotes networks among youth in this region), Digital Boyaca, or Digital Magdalena Medio, both in regions of extreme poverty and where a national peace initiative is active, among others; or through municipal programs, like those of the Infocali, established by the Santiago de Cali city hall, which offers ICT in marginalized communities, or Digital Ocaña, which is part of the national network mentioned before.

As part of programs like *Responsabilidad Social Empresarial* (Social Entrepreneurial Responsibility), some telecenters have been designed or supported by private companies, like the interactive portals established by *Empresa de Telecomunicaciones de Bogotá* (Bogota Telecommunications Company, ETB), which is setting up public access computers in marginalized zones of Bogotá. Other telecenters have been designed by nonprofit organizations, such as NGOs, universities, or foundations, like the Silvia industrial telecenter, which helps peasant organizations in Cauca, Southern Colombia, market their products,

or the training centers POETA, which offer marginalized populations and the disabled training on how to use ICTs. Some other telecenters are administered and maintained by a community organization that gathers and manages resources to establish a telecenter, and uses it for concrete activities that benefit a local development strategy. One example is the participative budget telecenters in Medellín, where telecenters were set up and are now managed by local organizations in the community.

The right to access the Internet through public access venues has been an ongoing, growing process: first, the right to public telephony was guaranteed, and then the right to the Internet. As expressed by one of the experts interviewed in this study,

“in the first stage, Colombia had very small telecenters with two or three computers located in places like pharmacies, bakeries, and local community stores. Then these telecenters became larger, more organized, with 5 to 12 computers, until they became centers with several kinds of access, with telephony, Internet, and training halls. (Interview with local expert).

There has been much research about the processes of systematization of telecenters in Colombia, but not much general research about these public access venues. A couple of institutional studies were carried out on State telecenters, one of the most important being, *Evaluación del Impacto y Análisis de Viabilidad de los Programas Compartel - Internet Social* (Impact Assessment and Viability Analysis of Compartel Programs – Social Internet,) which analyzed the viability and potential impact of 922 telecenters. It also dealt with well-being benefits, program impact on users, and a qualitative assessment of public access centers.¹⁰

This study showed that out of 922 telecenters, 652 are viable and could have a potentially high impact because they present a high performance in

an environment where they face a low competition, where there is a relatively high number of potential users with full capacity to make full use of the services provided. According to the assessment, the rest of the telecenters studied are high impact but not viable (199.22) or low impact and viable (72.8 telecenters). In the second group, although positive impacts might be expected, the telecenters do not necessarily have to be run directly by the government because these populations have favorable conditions, which means private industry could provide the service.

In a pilot project of three telecenters in the Cauca Valley, where the effectiveness of a community access telecenter profile was analyzed, the outcome was that administrators could not only be Internet sellers and providers, it was evident that they could also support a community by providing access to information and knowledge to local development organizations. The next question was: how can access contribute effectively to having a positive impact on a community's development?

With public resources in place, calls for bids went out in which small and regional organizations with extensive experience in ICT training and appropriation processes could participate. This bidding process was central for establishing alliances between ICT corporations interested in participating and organizations with training experience, in such a way that the process balanced infrastructure and appropriation.

Among the proposed appropriation models, the one that stands out suggests in-class and virtual training with local allied networks of telecenter administrators, as well as creating social-development fostering programs, as well as planning, and assessment processes. It has also been suggested that administrators should be paid, which was not done before, and that telecenters should be located in community service centers or educational institutions so that they can be endorsed or supported by an institution or an organization.

Public Libraries

As for Colombian libraries, they offer a moderate optimism around ICT access: in January 2010, the 1379 Act that provides a regulatory framework for public libraries was enacted, and sets for them the challenge of playing a strategic role regarding education, science, technology, research, and the economic and cultural development of the country. Among other things, the Act requires that by 2015 all libraries have an Internet connection, based on the reasoning that books come are not only printed nowadays, but also digital, and digital books need a support system.

There is no exact data about the number of public libraries in Colombia. Nevertheless, several research and institutional calculations report between 1,200 and 1,600 nationwide.¹¹ A study by Gloria María Ramírez shows that in 2007, only 14% of libraries had an Internet connection.¹² Nevertheless, according to Ana Roda,¹³ National Library director and head of the Public Library National Network, by 2010 this percentage increased to 42% thanks to the Compartel program.

This statistical information should be taken cautiously because this program will be free of charge for only one year; after that there will be no public budget for either software or equipment maintenance. In order to guarantee the public library network sustainability, the aforementioned Act states that both the Culture Ministry and the ICT Ministry should include in the Connectivity Agenda that public libraries be included as one of the main universal connectivity access venues.

It is worth mentioning the development of important library networks both locally and nationwide: the Public Library National Network, the Bogota Public Library Capital Network, BiblioRed, and the Medellin and Metropolitan Area Library Network. Among other goals, these networks seek to become gathering and access-to-knowledge venues that will create an interactive space to spread, educate, and create an interchange of information; distribute and generate cultural

capital equitably in a more globalized world; provide access to information and knowledge; introduce formats so that users approach and handle the appropriate language of each medium, and especially, include ICTs as essential information access tools. Nevertheless, it is important to note that these network experiences are usually more developed in the country's bigger cities, as well as in those municipalities and regions where education, culture, and information are strategic axes of development policies.

Cybercafés or Internet Cafés

According to the August 2010 Quarterly Connectivity Report of the Colombian ICT Ministry, access through collective centers, including telecenters and Compartel, was 18,306 venues. With these data, the number of cybercafés can be estimated at 15,000. Nevertheless, cybercafés have not been studied in countries such as Mexico,¹⁴ Argentina,¹⁵ or Chile. Documents dealing with collaborative projects between cybercafés and telecenters — such as in Argentina and Chile — have not been found either.

Very little information about cybercafés was found while reviewing a variety of documents, with the exception of surveys performed by the Consultants National Center and the National Statistical Administrative Department (DANE) reports, which show that by 2006, cybercafés were ranked second, after home, as the preferred place to access the Internet. Between 2007 and 2008, these venues were already ranked in the first place.¹⁶

Colombian ICT analysts and activists state that the cybercafés' link to development projects would be possible if there were efforts to associate these venues to social and ICT networks, seeking to widen their services, and working towards a relationship with the customers that would contribute to social development.

The 1341 Act, which restructures the ICT Ministry, establishes that this Ministry shall

coordinate the ICT Plan in conjunction with the Education Plan and the rest of the sectoral plans that belong to other ministries. Until now, policies in cybercafés have been oriented towards more restrictions for the safety of vulnerable populations, like children and the youth.*

Meanwhile, basic ICT indicators in homes, commercial locations, factories, services, and small shops show that the most used Internet access venues in Colombia are paying public access centers (cybercafés) both in 2008 (53.1%) and 2009 (47.2%), followed by homes, with 35.2% in 2008 and 43.8% in 2009. The least used Internet access venues were non-paying public access centers, among which are public libraries and telecenters.

NOTEWORTHY OUTPUTS ABOUT ACCESS VENUES

Telecenters

*"The Citizen Communication Center trains people on the use of new technologies. Nearly 700 people have been trained there, and 300 people are currently registered to be trained in 2010. This place does not offer Internet access, it is more an ICT training place, and people who belong to base social organizations are given priority, like people from the AMOR network, the ASOMA Marinilla Women Farmer Association, or the AMUCEA women producer association. [...] The Citizen Communication Center also trains people in the veredas schools so that they appropriate ICTs for themselves, and provides a good service to the community when accessing the Internet."*¹⁷

When looking at the results of different data collection tools, one can see that telecenters are characterized as venues that provide wide access opportunities to different kinds of people, especially children, women, and youth. These

results stress the role telecenters play in “digital literacy,” fostered by local, departmental, and national government institutions.

Telecenter operators’ willingness is strongly praised, even though they are neither professionals nor people trained for this kind of duty. Some of them are IT or engineering undergraduates, but most of them are professionals in other areas, and also social and community leaders who have been given some kind of ICT training. User surveys show, for example, that operators’ training is not perceived as an obstacle to use. This survey item’s percentage related to perceived obstacle is rather low compared to other items that are perceived as the main ICT obstacles — connection, speed, facilities.

While interviews and focus groups show that telecenters are mainly used to check mail, pay public services, and access government pages, user surveys indicate that the most common telecenter use is education (42%), while government services represent only 1%.

Libraries

“[...] In our libraries, and perhaps in libraries elsewhere, people with a physical disability, like the blind, have programs and activities with new technology. They have been appropriating a place for themselves... People with other kinds of disabilities have a place in a library. For example, the deaf: they come and send their mails as another form of communication, and their life is made easier... [...] The person in charge of a venue told a story about a young man who lived in the street, and the way he looked at the world changed when he had the possibility of accessing a venue’s services; far from being rejected, he was welcomed, and now he is one of the people who encourage and train newcomers.”¹⁸

Digital literacy offered by libraries, as well as the public access they provide to all kinds of people, are the topics we surveyed in Colombia. Unlike telecenters, libraries are seen as venues that provide more possibilities to the disabled, or to people with some kind of physical limitation, especially the blind and people with hearing impairments. Libraries are also considered to be better equipped venues than telecenters, as they belong to government structure and programs, even though they are not a political, cultural, or budget priority.

Field research reveals strong library-network development in Colombia, and shows that some of these projects are fostered by national state institutions, but most of the interaction and interchange networks and venues are a result of local and regional projects fostered by library operators.

Cybercafés

“Exactly, a friend who came here to make phone calls asked me one day to teach him to use the Internet, and I explained, and explained, and explained. He learnt, and now he works at the invoice department in a health entity, a project that deals with systems; I explained to him simple things, and then he learnt more by himself.”¹⁹

According to the survey respondents, most cybercafés are a result of informal entrepreneurship and need for employment from people who wanted more income for their families. Most of the cybercafé success is attributed to the quality and speed of their connection, unlike most telecenters and libraries. For example, in a focus group in El Carmen de Bolívar, participants stressed “privacy, freedom, good connection, accessories (web cams, headphones, downloaded programs), other services (transcriptions, printouts, copies), comfort, good equipment conditions, and virus protection” as highly prized cybercafé qualities.

Even though it is not their mission, cybercafés are venues where people learn digital literacy, which allows them to communicate with their family and friends, play, have fun, get information about interesting topics, or find a job. Several surveyed people said that ICT training and use in cybercafés changed their lives after a friend or a cybercafé operator initiated them into the ICT world. Many reported that they found a job through online job boards.

Stories gathered about cybercafés show that many of them started as venues where calls were made to cellular phones; then the venue got a computer. Little by little, the venue became better equipped and comfortable, a place where users could find connection speed, privacy, and freedom while searching for information.

“When Internet connections started to be available, I checked the price and saw it was affordable; I started my own venue with a TV, a connection, with unlimited service, and as I already had my phone call business I took the chance.”²⁰

Cybercafé operators continually learn and develop strategies and instruments—such as website listings, directions for surfing the Web, or users’ registries—that help support users. A high percentage of the surveyed cybercafé operators had some kind of technical or professional training.

There is more variety in cybercafé use: people do school assignments, search for a job, play games, pay for a service, and carry out government processes. There are fewer restrictions in general, and paying a fee gives users the power and freedom to do Web searches and use the other offered services.

According to a user survey, 36% of users make personal queries. The same survey shows that the most searched topic (42%) is education. It is also important to mention that according to qualitative

survey results, these venues make it possible to socialize, train, and educate; these qualitative areas are worth deeper research.

CONCLUSION AND RECOMMENDATIONS

1. Public Access to ICTs with Training and Orientation Contributes to Using ICTs for Community and People Development

The survey respondents state that public access to ICT has improved their life quality and has brought essential changes:

- *I do business on the Internet, get a lower price and a good quality.*
- *Now, as a mother in the community, I can search for education support materials for my children; everything is easier.*
- *It is different now with my family, I can communicate with my sisters abroad.*

Both libraries and telecenters are seen as community-development actors, provided their operators give ICT training, and as long as the venues provide an immediate functionality different to the one supplied by cybercafés, where free and unlimited access is possible, and development is not a main concern. Nevertheless, a lack of development focus does not mean cybercafés don’t have the capacity to provide tools that can help interested users achieve better ICT appropriation.

Technical conditions between different public access venues may vary due to equipment, connection speed, and service diversity. What seems to matter most is the quality of support provided by the operator, and to the user’s purpose of exploring or and optimizing usage.

Regarding ICT usage for development, there are many possibilities when ICT is seen as a tool. It can help support employment: e-Government, tele-work, telecommunications, and, generally speaking, or entrepreneurial strategies. Mainly in telecenters, but also in libraries, there are specific ICT-oriented training processes aimed at women, children, the elderly, the disabled, indigenous people, and armed-conflict victims or internally displaced persons (IDPs).

Public access venues are more than just ICT access venues, they are essentially a training, communication, experience interchange, alliance creation and strengthening place. In short, a library, telecenter, and even a cybercafé can make a difference in daily life, and they can be linked to any local development strategy, with special attention paid to priority communities and people.

2. The ICT National Policy Context Favors Investment in Terms of Hsing ICTs for Development

With regards to a participatory budget, communities prioritize investment and budget items focused on public access in their development plans. Thus, with ICT development organized on a local, departmental, and national level, ICT social development is fostered and promoted in a conspicuous way in Colombia.

Medellin City is an example. Since 2005, communities themselves request from the Mayor the establishment of telecenters in the context of a participatory budget in which the community proposes where to invest public resources. When a request reaches city hall, telecenters must propose and create a business plan for technical training. According to Catalina Escobar from the Makaia organization in Antioquia, out of 34 telecenters, 14 were established with a participatory budget: “Some of them chose later to include business

and social entrepreneurship topics. This was the learning phase, and now they are settling and strengthening, and, necessarily, aside from installing equipment, they must have a social-entrepreneurship strengthening program; so, we are really talking about a very important issue, and resource assignment has been optimized.”

3. Articulating Actors and Sectors is a Key Factor for Fostering ICT Use

The process of creating ICT projects is clear when it is managed and sponsored by a comprehensive and diverse group of actors. The alliance between sectors (public and private), and the collaboration among different actors are key factors for fostering better ICT use.

There is an inclination by grassroots organizations to see the importance of fostering ICT as an essential citizen right to information and knowledge. The number of organizations and institutions interested in fostering the right to free ICT access and establishing unified work plans for creating interchange and training networks, for improving telecenter equipment, but essentially for interchanging experiences, is increasing.

Establishing libraries and telecenters, or even projects to integrate these access venues, are some ways of achieving collaboration. In fact, as Olga Paz points out, there have been many different experiences between department governments and organizations and communities. This can be seen in the “digital city” projects and the participatory planning programs that were mentioned earlier.

Mobilizing the public sector with concrete policies and actions is possible thanks to organizations that are working to expedite and push all initiatives forward. Among the most remarkable social actors who foster the ICT development process in the Colombian regions is community itself, through social organizations, social lead-

ers, or universities. Their leadership is essential for expediting ICT development. On the other hand, the National Library Network coordinates libraries, while a Telecenter General Committee was created to coordinate telecenters and to encourage all-sector participation in Colombia: Makaia and Colnodo organizations, the Autonomous University of the West, the ICT Ministry, Colombia Digital, the University of Cauca and Empresa de Teléfonos de Bogotá (ETB), a public telephone company.

The Colombian experience makes it clear that alliances allow for, among other possibilities, getting resources from different financial sources, sharing knowledge to empower users, widening the supply of services, and even acting in a comprehensive way around the ICT-development topic in order to provide greater influence on public policies.

4. Access is a Social Demand from the Base, which Contributes to Personal Development

ICT training on useful work knowledge opens new opportunities to users. In the case of women in vulnerable communities, for example, ICT training not only develops specific skills, but it also provides a location through which to create local networks of collaborative work. In this respect, for example, the Servicio Nacional de Aprendizaje (SENA) plays an important role: “We get together, study the course, and then we see how we can open a business together. This happened in Villa Paz, where women organized themselves, studied, and then opened a micro-enterprise. In other words, through a telecenter, people have possibilities, tools, and resources that they did not have before, and which allow them to visualize new opportunities to improve their life conditions. We have seen the same with farmers and young people when communication networks have been created, etc.”

As with collective changes, individual changes also happen; people tell us, “I got training at a telecenter; I put that on my resume and got the job.” A telecenter contributes to finding better development possibilities in a community, but people who can work may also find income-generating possibilities.

Access Barriers are Related to Knowledge; Training Administrators is Part of the Solution

When talking about ICT, computers, and Internet access, the role of an infomediary or an administrator is essential to enabling knowledge transfer. It was found that there is a direct relationship between user empathy and administrator performance at the access venue. On the administration side, administrators have to focus on guaranteeing that telecenter services are known in the community; on the other hand, users in the community have to be trained on how to use computers and to access the Internet. Moreover, communities need to understand what the purpose of ICTs and Internet access is. Based on these interconnecting factors for generating awareness and use of ICTs in public access venues, organizations have gradually developed a series of strategies, trainings, and community assistance when using computers and the Internet.

5. Access Advantages for the Most Vulnerable

Public policy makers in Colombia face a challenging task, which is similar in other countries: developing not only the necessary infrastructure, but also technology appropriation, improved quality, and a widening and fostering of social inclusion necessary to make ICT use and access work to the advantage of the most vulnerable groups.

TAKING ADVANTAGE OF OPPORTUNITIES AND FACING CHALLENGES

- For many people and communities, ICT venues have become an effective tool, not only to manage poverty, exclusion, and injustice, but also to develop communication and information practices and strategies that help them overcome violence in their daily lives, and to build and rebuild relationships near and far. State institutions and social organizations are seemingly wasting the potential socialization and the reconstruction of the fabric of society offered by access venues, as new spaces for communication and the construction of a public set.
- Strengthening ICT public-access-venue operators, because their skills may be multiplied through their interaction with users, enables operators to help people with training, show commitment and the ability to interpret community requirements, and see their relationship to education, leisure, health, employment, and generally speaking, their implication in development.
- Access cannot be measured in terms of computers per inhabitant because closing the digital gap is not enough: the social gap must also be closed; in this respect, ICT training that teaches skills and appropriation is a step forward.
- Developing ICTs through “digital territories”; i.e. decentralized venues oriented to specific requirements of the Colombian user, with local government support and sector integration — universities, nonprofit and social organizations — is a valuable resource to further actions.
- Public access computing will broaden a vision of the future and improve the ability to further develop integrated actors and social sectors, both at a governmental and at a community, non-governmental level.
- Public policies already include participatory budgets in their agendas. The participatory factor opens the gate for bringing democracy to public access venues, and for surveying people about potential ICT developments according to people’s requirements.
- Even though there is an enabling environment for establishing public access venues (such as telecenters), and there is evident interest from the private sector for developing public access projects, these possibilities are still greater in urban communities. Although the rural sector has stated its requirements, costs are higher in non-urban environments, and Internet service providers are not interested in extending their services there. Connectivity is one of the main problems, and is still an important limitation, despite the people who believe in and maintain telecenters and the growing number of people and organizations capable of further developing these public access venues.
- Being the country with the largest mobile telephone network in Latin America gives Colombia opportunities for more ICT options and broadens the coverage that public access venues can bring.

ENDNOTES

- ¹ We thank Lady Otálora and Ana María Rosas G. for collaborating in the documentary and fieldwork review of this chapter.
- ² See Ángel, Darío (Comp.). *Señales de humo. Panorama de la Televisión Local y Comunitaria en Colombia*. Fundación Social y CINEP. Bogotá, 1998.

- ³ In this research, “operator” is the person in charge of helping people and providing support to users in public libraries, telecenters, and cybercafés.
- ⁴ **Corregimiento** is a term used in Colombia to define a subdivision of Colombian Departments. According to the Colombian Constitution of 1991 and Decree 2274 of October 4, 1991, a *corregimiento* is an internal part of a Department or province, which includes a population core. It is usually less populated than a municipality.
- ⁵ **Inspección de Policía** refers to a population center and its surroundings, usually smaller than a municipality and a *corregimiento*.
- ⁶ Ministerio De Comunicaciones, República De Colombia. Plan Nacional de Tecnologías de la Información y las Comunicaciones. Plan Nacional de TIC 2008-2019. Todos los colombianos conectados, todos los colombianos informados. Bogotá, Colombia, May 2008, p. 10. [Quoted on March 17, 2010] Available on the Web: http://www.colombiaplantica.org.co/medios/docs/plan_tic_colombia.pdf
- ⁷ Departamento Nacional De Planeación (DNP), Sistema De Las Naciones Unidas En Colombia (SNU). *Hacia una Colombia equitativa e incluyente. Informe de Colombia, objetivos de desarrollo del Milenio 2005*. Bogotá, Colombia, December 2006, p. 212. [Quoted on February 25, 2010] Available on the Web: http://www.pnud.org.co/img_upload/9056f18133669868e1cc381983d50faa/Fomentar_una_alianza_mundial_para_el_desarrollo.pdf
- ⁸ Consejo Nacional de Política Económica y Social—Conpes, Departamento Nacional de Planeación, República de Colombia, Sistema de las Naciones Unidas en Colombia (SNU). Conpes Social 91. “Metas y estrategias de Colombia para el logro de los Objetivos de Desarrollo del Milenio - 2015”. Bogotá, Colombia March 14, 2005, p. 37. [Quoted on July 8, 2010] Available on the Web: <http://www.google.com.co/url?sa=t&source=web&cd=1&ved=0CBQQFjAA&url=http%3A%2F%2Fwww.dnp.gov.co%2FPortalWeb%2FPortals%2F0%2Farchivos%2Fdocumentos%2FSubdireccion%2FConpes%2520Sociales%2F091.pdf&ei=UDo2TK3fKMG78gaa6ryDDA&usq=AFQjCNEdjvsiy4HT4ugB145X4zQOFhdwSA&sig2=uDZryga7XisvDbJmIOhN1Q>
- ⁹ The Telecenter National Network gathers a group of people and institutions that support management and participation processes to enhance people and community conditions through ICT use. See more in www.telecentros.org.co
- ¹⁰ Centro De Estudios Sobre Desarrollo Económico - Cede, Universidad De Los Andes. Resumen de la Evaluación del Impacto y Análisis de Viabilidad de los Programas Compartel - Internet Social. Ministerio de Comunicaciones, República de Colombia. Bogotá, Colombia, 2007.
- ¹¹ Rodriguez Santamaria, Gloria María. La biblioteca pública en Colombia: miradas a una realidad. En: Congreso Internacional. La biblioteca pública: un continente entre los continentes (November 2007: Medellín). In Acercamiento al estado actual de la promoción de la lectura en la biblioteca pública en Colombia, Didier Álvarez et al. Available on the Web: http://www.scielo.unal.edu.co/scielo.php?pid=S0120-09762008000200001&script=sci_arttext
- ¹² SOTO, Arley. Apuntes sobre las bibliotecas públicas municipales en Colombia. In *Códice*, Vol.3 No.001, 2007, p. 49-53). [quoted on July 17, 2010] Available on the Web: <http://redalyc.uaemex.mx/pdf/953/95330105.pdf>
- ¹³ Encuentro Nacional TIC, Desarrollo y Cultura Digital. June 30 to July 1, 2010. Bogotá, Colombia. Panel: Bibliotecas que ofrecen

servicios de TIC. For more information visit: <http://www.telecentros.org.co/encuentro2010.shtml?apc=Plal--&x=21113>

¹⁴ Some of the most acknowledged authors in Mexico are Ana Lucía Castro Luque, Blanca Esthela Zepeda, Ramón Jonquera Limón, Éricka Rueda Ramos and Octavio Islas.

¹⁵ Researches such as Susana Finkelievich's and Alejandro Prince's (<http://www.oei.es/tic/rolcibercafes.pdf>) or Joaquín Linne's and Gino Germani's (<http://www.perio.unlp.edu.ar/observatoriodejovenes/archivos/ponencias/porta/linne.pdf>)

¹⁶ For more information on the topic, see Centro Nacional De Consultoría. Medición de

factores multiplicadores para el cálculo de usuarios de Internet en Colombia. March 16, 2006, p. 9., Departamento Administrativo Nacional De Estadística – Dane. Press release. Indicadores Básicos de Tecnologías de la Información y Comunicación TIC. Hogares, Comercio, Industria, Servicios y Microestablecimientos. Bogotá, Colombia, September 2, 2008, p.8.

¹⁷ Marinilla focus group statement.

¹⁸ Interview of a local expert in Bucaramanga.

¹⁹ Cybercafé operator's interview in Barranquilla.

²⁰ Cybercafé operator's interview in Barranquilla.

Chapter 15

Public Access ICT in Dominican Republic

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EXECUTIVE SUMMARY

The Dominican Republic is a small country in the Antilles Archipelago with a population estimated to be approximately 9.6 million, most of whom are under the age of 35. Nearly half of the population lives in poverty, and the number has grown steadily since 2002. The extensive poverty and a concentration of young citizens hold broad national implications. With so many of the population being both young and poor, a higher social vulnerability is problematic regarding such issues as child labor, commercial sexual exploitation and abuse, school desertion, homelessness, and addictions. The situation becomes even more complex as these problems further increase the country's poverty level, which in turn makes even more people vulnerable. This resulting cyclic evolution creates a condition that rapidly erodes the entire national political, economic, and social structure.

The unemployed population in 2000 was estimated to be 13.9% of the total productive population; that figure rose to 18% in 2004 and 2005. This situation was ascribed to the 2004 economic crisis. However, since 2005, there has been some improvement, reducing the number to 15.6% in 2007.

The Gross Domestic Product (GDP) has increased since the economic crisis in 2003-2004. Although the GDP in 2003 reached negative numbers (minus 1.9), it increased to a positive 9.3 in 2005 but fell back to 5.5 in 2006.

The overall social, political, and economic conditions in the Dominican Republic are severe. As a consequence, the Dominican Republic was selected to participate in this international investigative study to assess the ability of the public to access information and communication venues. The researchers also reviewed the role of information and communication technologies (ICTs) across the nation's overall economic, political, and

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regulatory framework. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, how they realize successes, and how they meet the needs of underserved communities and groups.

This study provided insight into the state of access to public information venues, and specifically considered public libraries, telecenters, and cybercafés, with a special focus on the social and economic inequities that affect the country regarding access to information sources. Consequently, the researchers set out to understand the information needs of underserved communities, public access to information and communication venues, and the role of ICTs. This study aimed to contribute research that would be a tool for policy and decision makers to plan, design, and develop projects in the field of information and ICTs.

The methodology used combined quantitative and qualitative techniques to obtain data. A user survey was applied in selected libraries, telecenters, and cybercafés among different kinds of populations living in urban and non-urban areas. The research team also interviewed approximately fifty stakeholders and users familiar with the subject matter. The people who were interviewed included researchers, venue staff, information and ICT professionals, and community leaders. The study team performed a detailed literature review, field observations, and conducted focus group discussions to validate the research process. The following is a listing of the most important findings:

- The available information-related resources are usually more abundant in urban venues than in rural venues, including more updated collections and a greater ICT presence. There is a significantly larger percentage of young female users in libraries and telecenters than in cybercafés.
- Access to information is limited not only by the existing infrastructure, but also by the lack of capacity to search, process, and appropriate the information. The country's unreliable power supply and distribution issues also limit access.
- An increase in digital literacy and connectivity are interrelated; however, the number of computers per person and the capacity to use software packages does not guarantee the solution to the long-standing social problems. For example, increased digital literacy and ICT capacity have not resolved the migration trends from agricultural zones to tourist centers and urban zones, or the migration out of the country.
- The use of libraries is closely linked to the formal education system. Telecenters are used as one way to build the capacities individuals who need to improve their ability to obtain employment. Cybercafés are more closely related to academic, entertainment, and social activities.
- Sustainability and maintenance are important challenges for libraries, telecenters, and Internet centers when the facilities need to be updated and repaired, and when the equipment must be replaced.
- The content and activities in the libraries and telecenters are not always coordinated with the local development possibilities, especially in rural zones.
- There is a need for future studies that will focus on information and knowledge processes related to migration. The Dominican Republic is a destination for large numbers of people from Haiti who seek employment while the country loses many of its own local workers to Europe and the United States.

INTRODUCTION

Country Overview

The Dominican Republic is a small country in the Antilles Archipelago with a land area of 48,670 sq km divided among 32 provinces, according to the National Statistics Office (ONE). In 2008, the population was estimated to be approximately 9.6 million, and most are under the age of 35 (ONE, 2007). Together with Haiti, the Republic forms the island that was christened “La Española” in 1492. The nation borders Haiti to the West, the Atlantic Ocean to the north, the Caribbean Sea to the south, and the Mona Canal to the East, which separates it from Puerto Rico.

The government of the Dominican Republic is designed as a presidential representative democracy with executive, judicial, and legislative branches. The bicameral legislative branch seats 32 senators and has a chamber of 150 legislators. The president serves a four-year term, and the governing bodies are subject to nationwide public elections. The judicial branch has 16 judges, 108 courts of appeal, and 174 provincial courts (ONE, 2007).

Nearly half of the population lives in poverty, and the number grew steadily each year for the past several years until it reached 44.9% near the end of 2002. Again, that number rose to an even more significant level in 2005 (47.5%) when 1.5 million people were reduced to poverty as a result of the financial crisis of 2003-2004. However, the percentage declined to 44.5% in 2006.

The extensive poverty and the concentration of young citizens hold broad national implications. With so many of the population being both young and poor, a higher social vulnerability is problematic regarding such issues as child labor, commercial sexual exploitation and abuse, school desertion, homelessness, and addictions. The situation becomes even more complex as these problems further increase the country's poverty

level, which in turn makes even more people vulnerable. This destructive cyclic evolution creates a condition that rapidly erodes the entire national political, economic, and social structure.

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The Dominican Republic is faced with severe social realities, and one of the most taxing being the migration of local workers away from all types of employment. In 2005, it was estimated that approximately one million Dominicans lived outside the country, especially in Europe and the United States. That represents 12% of the total population. The primary motivation to leave is the search for a job and an income to support a family that remains in the country. The funds returned to support the families represented the second largest contributor to the GDP in 2006 and totaled 10% (Ratha, 2008).

The country also receives large numbers of migrants from Haiti, who usually fill most of the need for cheap agricultural laborers and construction workers. It has been estimated that nearly half a million Haitians live in the Dominican Republic (Tejeda, 2008).

The official language is Spanish, although Creole also is commonly spoken among the population of Haitian origin, and there are a few communities that speak a type of English dialect. Ethnically speaking, the country is predominantly Mestizo (defined as an ethnic combination having Aboriginal and European origins). There is a very small number of other ethnic groups represented.

Gender inequity is a long-standing legacy in the Dominican population, and exists across all aspects of the Dominican society. Women represent a smaller percentage of the economically active population. From a health and wellness standpoint, more young women have AIDS than young men. Women also continue to have disadvantaged positions in access to public employment positions (ONE, 2008). Little has been openly revealed about an astonishing statistic in which 2006 saw 182 female assassinations.

The large numbers of issues that face the country also are reflected in the inequities present at the venues that offer public access to information.

Methodology

The research team that was selected to conduct the study is part of the Costa Rican cooperative Sulá Batsú (www.sulabatsu.com) and was integrated by Francia Alfaro, a social psychologist, and José Pablo Molina, a social communicator. They are students of the Masters program in Educational Technology of the Universidad Estatal a Distancia de Costa Rica and have extensive experience in development and human rights.

The research was coordinated by Kemly Camacho, an anthropologist and computer-systems graduate with a Masters degree in Project Evaluation. He currently is a doctoral candidate in Infor-

mation and Knowledge Society at the Universidad Oberta de Catalunya. Paulina Torres and María Isabel Victoria contributed to the quantitative data processing. Margarita Salas, Ana María Mora, Daniel Ortuño, María del Rocío Vargas and Almer Murillo were responsible for translations.

At the outset of the study, the investigators examined approximately fifty economic, social, and statistical reports from international sources, non-government organizations (NGOs), and government projects.

Venue samples were selected to include urban, rural, marginal urban, and rural-urban settings, so that the data collected could include the trends that affect each venue according to the sector, the local population, and the inequity variables.

Communities in the national district were included in the study because the district is the most heavily populated location and best represents the characteristics of the urban and marginal urban areas. In the case of urban-rural and rural areas, the province of El Seibo was selected. It is one of the poorest regions in the country and was selected by the United Nations as a community to monitor when developing the UN Millennium Development Goals. It was also considered important to study a cybercafé in a location frequented by tourists, because tourism contributes so much to the Dominican economy. Other venues, such as universities, banks, NGOs, and scholarly libraries were not studied because they are usually restricted to specific user groups.

The socio-economic condition in the Dominican Republic directly affects equitable access to information and ICTs. People who have limited economic resources commonly have an education of lower quality and are more likely to have a reduced ability to use the available information in any effective way.

In general, the services that venues offer are closely related to the status of the formal education system, and the effect of an individual's educational level was clearly apparent in the study. Most of the people who visited the venues were

active students and were searching for information for homework. In the Dominican Republic, the variable related to education depends largely on whether a user is active or inactive in the formal education system, and this discovery became most applicable with regard to library users.

In the telecenters, it was possible to identify young adults with low educational levels who go to telecenters to learn computer skills in order to improve and broaden their employment options. In all of the venues studied, most of the users were children, teenagers, and young adults. The infrastructure, design, and services in the venues, in general, target these younger users almost to the exclusion of adults and elderly people.

Most of the users in libraries and telecenters are women, but in the cybercafés, the trend was somewhat more equitable. There are no conclusive data to explain this difference, but there are some ideas about the distinction. For example, there are more women in the formal education system, and many of the services that the venues offer are often closely linked to educational purposes. When the subject was raised, the researchers were often met with a common and unsubstantiated general perception voiced by male users and center operators that this trend is “explained” by the “fact that women study more than men.” A more likely explanation can be found in the influence of non-domestic child labor that removes an important number of male children from the educational system, and, hence, also from the access to information venues.

Another explanation could be attributed to gender-related learning styles that are acquired through societal influences that begin in early childhood and drive women towards a more organized style that would lead them to participate in training courses. From earliest childhood, men are taught to experiment with technological subjects, which might help to explain why more men than women use the cybercafés instead of the telecenters.

This study is based on statistical and bibliographic data, on the systematic analysis of surveys and interviews, observations of the research team, and validation of preliminary results in a group interview with experts on the topic. Also, more than 65 people were interviewed, including government officials, community leaders, the staff from NGOs and research centers, and the operators/coordinators of the different venues.

This study also was based on the model provided by the Technology and Social Change Group (TASCHA) at the University of Washington who provided a survey that was administered to users of all the venues studied, both urban and rural. Finally, the information obtained and the preliminary findings were discussed with a group of recognized experts in a group interview. The information obtained was also crosschecked with the data collected by different techniques and from different sources. The preliminary reports were discussed in a focus group with a group of experts. The information was contrasted with different sources, both from official government sources as well as social researchers and NGOs.

OVERALL COUNTRY ASSESSMENT

This study was based on an analysis of three primary and important public information access venues: public libraries, telecenters, and Internet centers. These three venue types address access to information from two broad approaches that conceptualize information very differently. The first approach is deep set within the Dominican formal education system. This approach views information as a closed and finished product transmitted from an authoritative expert to persons with less knowledge and presented in specific spaces under strict behavior codes. This approach is also often present in the public libraries. It answers mainly to the needs of elementary and high school students. The approach to information is generally presented under the same controlling conditions

in the educational system, such as remaining quiet and not having direct access to the sources, which makes it a closed-shelf system.

The second approach operates under a concept where access to information is provided more openly, education being considered as an unfinished process, under constant change, and which grows when shared. Consequently, under this approach, collective creation and open learning develop their own incentives. This approach is more common among Internet centers, and while there usually is a commercial service fee, the process of learning is more open and accepting. Under this approach, learning can happen while playing and in the company of peers whose knowledge also is valid. The information accessed is also more varied, adding to the diversity of its uses.

Telecenters are an intermediate point between libraries and Internet centers. They promote free use of computer laboratories to facilitate access, but they limit the type of information that can be accessed. The methods of learning computers and ICTs they promote are more traditional, along the lines of the first type of approach.

Access, Capacity, Environment, and the Inequity Environment

The three types of venues studied have broad coverage. Nevertheless, the numbers of the venues, and the resources available to them, are heavily concentrated in urban areas, especially the venues in the capital city of Santo Domingo.

The venues that have ICTs are relatively new, especially in the case of the Informatics Training Centers of Indotel, Dominican Institute of Telecommunications. Indotel is a Dominican organization that regulates and promotes telecommunications programs. In general, telecenters have the support of a government organization responsible for equipment renewal, and this organization is in charge of deciding where it is most strategic to place a telecenter. The public libraries in urban zones have more technological resources than

public libraries in rural zones. Because of this discrepancy, Indotel has played an important role by establishing telecenters within some libraries.

One critically important element that affects every aspect of ICT use is electrical power. The electrical power sources in the Dominican Republic are especially unreliable and unevenly distributed. The different venues face power outages almost daily, often lasting two to five hours, having a huge impact on the venues, users, and services.

The use of the services in the venues is free in most cases, except in the cybercafés, which follow a more commercial approach. The cybercafé fee structures determine their scope and the potential for purchasing updated technology.

Most of the venues users who were interviewed have developed their capacities and technological knowledge to the degree that they can use the services offered by the venues they visit. These capacities are taught, for the most part, within the formal education system, but the training is neither extensive nor detailed. The results are sometimes limited when used in library venues because of a lack of training in advanced information searches. Users are also limited by the type of contacts they can establish within the library's limited resources, which are mostly closed-shelf materials.

In most of the telecenters, the capacity development is focused on digital literacy, which is integrated and used for educational purposes, such as taking online courses, sending and receiving information, doing homework, and acquiring abilities that enrich the professional curriculum. The skills developed in the Internet centers usually are more focused on communications.

Information Needs of Underserved Communities

The information needs of underserved communities are closely linked to the everyday immediate needs of the population in the communities and vary according to the local economic and social

conditions. They also vary to some degree with the locality, and whether it is urban or rural. The following is a list of some of the more important topics the underserved population urgently needs to learn about:

- Preventive health care and how to decrease the risk of endemic infectious diseases, the causes and effects of diarrhea, cholera, dengue fever, and, especially, sexually transmitted diseases. These problems are more relevant in areas that lack hospitals or health centers.
- Gender-related issues, such as human rights, domestic violence, sexual and reproductive health, and teenage pregnancy.
- Migration and related issues, including risks for the migrant and reinvestment of remittances.
- Job opportunities, small business development, and entrepreneurship, especially as they might apply to potential female entrepreneurs.
- Natural disasters, especially in high-risk zones.
- Agricultural assistance, market prices, diversifying crops, and identifying new markets.
- Development of renewable energy systems for underserved communities.
- Public services, electrical power supplies, clean water, and waste treatment.
- Educational services and opportunities.
- Tourism industry job opportunities.

Economic, Policy and Regulatory Environment

The Dominican economy is based largely on tourism and on remittances sent by migrants working in other countries who must continue to support family members remaining in the Dominican Republic. The general economy is depressed, and

nearly half of the population lives in deep poverty. The country lacks the resources to resolve the economic issues adequately.

As a result of the extreme lack of productive jobs, there is an ongoing migration that has seen vast numbers of the job seekers migrate to the capital and to other urban centers, as well as to the localities that serve the tourist industry. Many others migrate to Europe and the United States. This economic dilemma highlights the need to provide infrastructure, facilitates, and capacity-building initiatives that will establish digital technologies and skills to aid the underserved population. If these initiatives can be implemented, funded adequately, and delivered by well-trained and dedicated staff, they can significantly improve the quality of life for a great many people.

At the time this study was conducted, the political environment favored the growth and expansion of initiatives related to information access. However, there is little or no precedent in the country for advances of this type, and the institutional structure that would allow the sustainability of such a politically initiated effort, regardless of changes in the national administration, is not a reality in the Dominican Republic. There is little legislation in place that even addresses the topic directly.

The country's regional and international context is mediated by its move towards an open economy and the globalization of services. The country has a modest product assembly industry, although it struggles to survive when faced with the international competition in the industry. In the case of the Dominican Republic, it seems the government is trying to encourage a stronger approach toward promoting knowledge-based products and services, especially when facing the strong competition in the assembly industry from countries such as China.

Like most other nations, the Dominican Republic must also confront other international factors, such as the world economic downturn, the high cost

of energy supplies, and the rising price of food. Decreases in discretionary funds usually force governments and the public to cut expenses, and cultural interests and education often are among the first areas to feel the effects. The need for less costly food supplies could be an opportunity to upgrade the country's agricultural knowledge.

Collaboration Practices and the Perception of What is “Cool”

There was no evidence of any formally established links or collaborative networks among the venues studied, although the potential exists to establish a linking network that would join libraries, telecenters, and cybercafés. For example, the physical space of a cybercafé could be used to serve as a telecenter in certain time slots, or carry a database of library titles.

The researchers found a few instances of collaboration among Indotel's telecenters and small libraries where a telecenter was being established within the library. The effect complements and strengthens the library's usefulness among users. For example, the presence of computers allows university students to use the library for information searches.

One of the perceptions of what is “cool” is the idea of a widespread distribution of computers and ICTs that can reduce the digital gap. This situation would offer opportunities to the Dominican population because they would have access to the resources that could be used to benefit the country. However, improper use could become an obstacle when the focus of the investment has been on providing access to technology without a corresponding investment in developing the capacity to identify what information is strategic or how to find it. Hence, there is a risk that the value of this potential opportunity will be diluted.

Another area that is “socially attractive” is to the idea of investing in an extensive infrastructure that supports ICTs. However, given the present social and economic realities in the Dominican

Republic, the infrastructure might not necessarily be accompanied by adequately trained staff or receive a corresponding investment in locally applicable or relevant content, or socially applicable information. For example, the building that houses the Pedro Mir Library in the University of Santo Domingo is impressive, with many specialized facilities and numerous computers; however, the shelf collection and the available services are not updated or nearly as impressive as the building itself.

For most users, it is attractive for a venue to be spacious and well equipped, well ventilated (or have air conditioning), and offer other conveniences, like a coffee shop or a photocopy machine.

As in many other countries, the use of computers in libraries and telecenters is restricted to what is thought of as research, and only certain forms of casual use are acceptable. Social networks, chats, games, “non-educational” sites, and podcasts are forbidden in many of these venues as they are not considered to be related to educational research.

Much of this limitation is driven by the perception that the creation of libraries and telecenters should conform to formal education processes, which, to a large extent in the Dominican Republic, are still based on a behavioral practices and design. By forbidding the use of these tools, public access to these centers is not only constrained, but also fosters the notion that what is “relevant” must conform to what is related to the content of traditional learning centers. This limitation also inhibits experimentation and the establishment of human networks that also can be valuable as sources of information.

Shifting Media Landscape

Some libraries feature community outreach programs that include movies and videos of topics relevant to the communities. As one example, the Centro León is a large well-equipped library in Santiago where users can visit various artistic or anthropological presentations and access multi-

media digital resources on cultural topics. Some libraries feature community-radio broadcasts that have a short scope but present programs oriented to meet the community's specific information needs. Television and radio broadcasts often serve as a public information and communication channel and fill information voids. For example, they can quickly transmit valuable information to a wide range of people about a broad range of issues such as illnesses, natural disasters, environmental conservation, or HIV/AIDS.

Based on the results of the various interviews, observations, and surveys performed during this study, the use of Web 2.0 is centered heavily on social networks, YouTube, videos, and in some cases, G-mail. Wikipedia also is used, but only as an information source.

According to the data collected, mobile telephony in the Dominican Republic is used almost exclusively for personal communications; there was no indication that it was used as a public information venue or served the information needs of underserved communities.

VENUE ASSESSMENT

Public Libraries

Most of the public libraries are designed to support the public educational system, and focus most often on the needs of elementary and high schools. In general, the rest of the content is quite limited and usually old and outdated. The best collections available are in the public university libraries located in the two largest national libraries (both of these libraries were being remodeled while this study was being conducted). There is no such thing as a national library system that allows any type of book exchange, and materials in the collections are only rarely allowed out of the libraries.

ICT services are more common in the libraries located in the capital than in rural areas, and are only rarely found in small libraries across the country. A few minor libraries are installing a type of telecenter in their facilities with the help and contributions of the Dominican Institute of Telecommunications (Indotel). Indotel is a Dominican organization that regulates and promotes telecommunications programs.

The public libraries serve as points of public access within their own communities. All of the facilities the study team visited were physically accessible and located in the center of their target communities. However, in rural areas where fewer libraries exist and people live farther apart, access is more difficult, especially in communities without libraries and where the public transportation system is limited.

Financial resources have a very significant effect on the success of libraries and often determine whether or not ICTs are installed. In addition, financial resources have a profound effect on the availability of fundamental requirements, such as an uninterruptible electrical power supply and the need for a reliable back-up battery system or a generator.

Public Library Access, Capacity, and Environment

According to a group interview with librarians who worked at the Universidad Autónoma de Santo Domingo, university users have developed very little capacity to use the library services and to search for information. A similar situation applies to public library users, and was revealed in the answers about reliable information in the study's user survey. The survey results reflect how users often are unable to differentiate between reliable and untrustworthy information, and, therefore, lack the capacity to research and use library resources effectively.

The ability to research, evaluate, and use information effectively is related in part to the teaching methods in the educational system. Therefore, it becomes difficult for people to determine what information is appropriate, or to use the available information in effective ways.

Libraries, in many ways, are institutions derived from the core of the education system. Therefore, every change in the education system directly affects the purposes, needs, and content of these venues. The education system for some time has promoted digital education activities, which changes the extent and focus of the services needed by users, and has helped to drive the demand for ICTs.

Collectively, these changes are reflected in the nation's economy. Given that the two most important contributors to the GDP are tourism and remittances, both of them rely heavily on ICTs to support communication for development in an environmentally clean industry. Access to information is further limited by an economy that promotes the most basic types of employment and supports the types of jobs that have little use for the information available in libraries.

Revenue Streams for Publicly Funded Venues

According to the Culture Law No. 41-00, the public expenditure for culture should be a minimum of 1% of the total public expenditure, but the law does not establish any specific budget for libraries. The study team was unable to obtain any other funding data related to county libraries or international cooperation.

In 2008, the Ministry of Culture budget reached 0.43% of the national budget, and 6.17% of that amount went to the National Libraries Office. It is important to say that these financial data only affect libraries that belong to the Ministry of Culture; this budget has no relationship to county libraries.

Case Example: Villa Duarte Library, a Rural Library Model

The Villa Duarte Library is located in the Province of Santo Domingo in the National District. Its collection is varied and contains material by Dominican authors, magazines, a video library, a toy library, a computer for online catalogue searches, ten computers with Internet access, 9 large tables, 4 small tables, a 13-person staff trained in library science, cultural-extension activities, and workshops on various topics. Sixty-five percent of the users are women, students, and young children.

The toy library helps women with young children who can then use the library without being concerned about their children. As a result of the relationship between the library and the community, some people have contributed to the library as volunteers. Some students develop community or social projects, and other young people work to repair the computers.

Telecenters

There are several types of telecenters in the Dominican Republic, but this study focused on those venues that have the greatest coverage. Three venue types were studied, and all of them are supported by government institutions and include the telecenters of the Dominican Institute of Telecommunications (Indotel) called Training Centers on Informatics (CCI). Indotel contributes laboratory equipment, computers, Internet connections, and furnishings, which are installed in different kinds of institutions. Indotel sometimes even provides the property for the venue. These institutions may take over the administration of the telecenter and its services and offer the services free to the public. According to information taken from the Indotel website, there are 742 CCIs, which means they have the most coverage of any group of telecenters in the country.

Another group is composed of the ninety venues that belong to the Virtual Classrooms of the State Secretary on Education, known as the AVEs. AVEs are truck containers that have been converted to laboratories and installed in formal education centers. They provide services to students when school is in session and to the rest of the community when the schools are not in session. One of the project goals is for the communities to eventually take over the management of the AVEs.

There are fifty Community Technological Centers (CTC) distributed in rural areas. Their facilities often include a community radio broadcast station and other locally relevant projects. The CTCs are developed in conjunction with other institutions, and also offer capacity-building programs that go beyond digital literacy.

All of these telecenter types (AVEs, CCI, and CTCs) provide forms of digital literacy and capacity building. In the CCI, each organization that hosts the venue is in charge of the capacity building.

Telecenter Access, Capacity, and Environment

Most telecenters are located in urban areas, and, in general, the accessibility and coverage are good (there currently are about 836 of them), but the fees for some paid services do not fit the economic situation of each community.

The majority of the centers the researchers visited are youth-project centers, and the equipment usually works well, but in some cases the computers are damaged or need maintenance and operate very slowly. Because these types of telecenters are supported by a government entity, the responsibility for maintenance rests with the laboratories. Periods of support vary among the individual cases; for example, the CTCs support the project. In the case of AVEs, the State Secretary on Education has not yet set an expiration date for the support it provides, which has made the amount of responsibilities assumed by the com-

munity technological committee (composed of people from the community) inexact. The CCI guarantees equipment maintenance for a two-year period, after which each host organization must take the responsibility.

Because most telecenters focus on digital literacy and capacity building, the staff usually has sufficient training to meet the user needs. At the same time, they understand that user appropriation is important and has an impact on the daily lives of the users.

There is strong need to develop and deliver locally relevant content, and because telecenters have focused on digital literacy, the development of specific content has lagged. The greatest needs are related to information about subjects such as health care and services, employment, small business development, teenage pregnancy, HIV/AIDS, sexual exploitation, drug addiction, and sewage handling and treatment.

Cultural factors influence the way workshops are managed and follow the practices of the prevailing education system where a teacher gives a lesson and students follow. Also, communication applications, such as chatting and social networking, are prohibited and contrast with the public's tendency to have places to interact in a social setting. As one example, chess afternoons (more frequent in rural areas) are social settings where people gather to play chess, chat, and share their views on various subjects. In another example, the *colmados*, or grocery stores, are places where people gather to chat, listen to music, and socialize. These establishments are quite common in both urban and rural areas.

The local environment in the communities is receptive to the telecenters, and a current government policy is narrowing the digital gap through this type of initiative. At the same time, the productive sector supports the demand for this kind of service.

The regulatory framework most favorable to digital development is the General Telecommunication Law, which states that 2% of the

amount charged through telephone bills must go to support the Contribution to the Development of Communications Fund (CDT) that finances CCIs. The international environment also works in favor of telecenters, which can opt for development funding.

Revenue Streams

With the single exception of the CCI project of Indotel, the researchers were unable to obtain any revenue stream or funding allocation details about the other venues types. The CCI venues are funded with part of the 2% collected from the telephone invoices and oriented to the CDT by Indotel and allocated to different projects related to the democratization of telecommunication services.

It is common for telecenters to charge access fees to assist in recovering their operating expenses. This process varies slightly among the telecenters, depending on the specific type of venue. In the CCIs, Indotel donates the laboratory equipment (computers and desks). In some cases, Indotel also provides a building. During the first two years of operation, Indotel covers the equipment costs. At the end of the two-year period, the host organizations must take responsibility for the expenses of the venue, and even though the organizations are supposed to offer the venue services free of charge, this has not been possible for some of them. Many have had to start charging for some of the services, such as capacity building, Internet access, printing, photocopying, and others.

In the CTCs, a management council establishes the service charges to cover some of the maintenance costs. For the AVEs, the community is responsible for the fuel expenses to operate the vans and must pay for replacement hardware and the consumable materials. These expenses are covered by the fees charged for prints, photocopies, and, in some cases, for Internet access and digitizing documents.

Case Example: The AVE Telecenter in Miches

The AVE telecenter located in Miches in El Seibo province has ten computers located inside a van that has been adapted to act as a computer laboratory and information access venue. When the study researchers visited the site, it was the only AVE telecenter that offered an Internet connection within the Miches community. The CCI that is beginning to serve the area did not yet have an Internet connection available, and there were no other Internet centers in the community. Consequently, the AVE telecenter has special characteristics that define it. For example, in other similar venues, chat sites and social networking sites are forbidden, but the Miches case uses a different approach. As part of the self-sustainability strategies of the center, the “Community Commission” in charge of administering the venue has stipulated that these services can be accessed within the center as long as the users pay to use them. Other services, such as information searches for academic support, are free, as they are in other venues. In this sense, and after looking at the characteristics of other telecenters and cybercafés that the researchers visited, they concluded that this particular telecenter integrates both the telecenter and cybercafé roles.

According to the administrator, this multiplicity of services has identified specific segments among the users. One segment is composed of the students of the institution where the AVE is hosted and who receive free services, including capacity building and Internet access. This segment of users is served from 8:00 am to 6:00 pm. And then, from 6:00 pm to 9:00 pm, other people from the community can use the venue. People attending the venue at night also visit it on Saturdays from 8:00 am to 3:00 pm. On Sundays, when the venue is open from 8:00 am to 3:00 pm, other segments of users visit the venue. This situation is influenced to some degree by the working schedules of the users in the community.

Another characteristic of the Miches center is that capacity building processes outside the AVE have been developed within the community. For example, last year, 22 people from the local hospital attended a capacity building process hosted by the AVE.

Cybercafés

Cybercafés in the Dominican Republic are an important point of access to information, and especially to digital services. The restrictions imposed on the users are far less than in telecenters. Many of the users who were surveyed stated that cybercafés are fun and entertaining places in contrast to the users interviewed at the telecenters, who referred to those venues as being simply important or good.

According to the data collected, most cybercafé users are under thirty years of age and use the venues for studying, leisure activities, and for communicating with peers, who in many cases were said to be relatives living abroad. Most users considered the fees charged for the services were reasonably priced, but many of these users also recognized that some low-income people might not be able to afford the fees, even if they are low.

Access, Capacity, and Environment for Venues

The establishment of cybercafés in the different regions of the country is linked to the country's progress in broadband Internet connectivity, and all of the venues in those regions that have that connectivity offer the Internet services as private businesses operating for profit. The venues that have connectivity and offer the services are almost always located in the larger urban cities, but a very few are located in the more heavily populated areas in the countryside.

The kind of technology available in cybercafés varies from one venue to another and depends largely on the demands of the local users and their

particular needs. In tourist centers, it is common to find cutting-edge technology with a strong capability to communicate by voice and video. This technological landscape is also true in most call centers. The kind of technology available is also a function of the demand originating among the many Dominicans who want to communicate regularly with relatives living in other countries.

The fees charged for cybercafé services do not seem to be a significant concern among the users; access is more sharply affected by other factors, such as a lack of training by the venue staff and the unreliability and inadequacy of the power supply system.

In most of the cases studied, staff capacity was limited to basic computer uses and to collecting user fees. In some cases, especially in rural settings, the person in charge also helped with basic technical inquiries from users. However, the inquiries had very little to do with data processing.

The integration of cybercafés in the daily life of the population is focused primarily on leisure time, interpersonal communications, and academic activity. Internet use is still low, and there are government initiatives to increase computer literacy among the population. This will improve the way users can access cybercafé services and appropriate the knowledge and the applicable content.

Unlike telecenters and libraries, cybercafés are public information access points that operate like private businesses, and their sustainability requires making a profit. For that reason, government initiatives for digital education, and the expansion in coverage of Internet services through broadband connectivity, will foster an increase in the numbers of potential users and a corresponding increase in the number of cybercafés. This outcome is especially important because a great many of these potential users have little discretionary funds, preventing them from buying computers and maintaining Internet connectivity at home.

The Dominican economic context based on remittances and tourism needs cybercafés to allow

foreigners and Dominican nationals to communicate with other people abroad in an easy low-cost way. The regulatory framework does not constrain cybercafé operations to any significant degree.

Case Example: Moab Cybercafé

The Moab cybercafé is located in Villa Consuelo in the province of Santo Domingo in the National District. The location in the community is described as being a zone of social vulnerability. The cybercafé began operating in March 2006 when it opened with the aid of a government initiative meant to diminish the digital gap by establishing telecenters.

The center offers computers with Internet connectivity, telephone booths for domestic and international calls, fax transmission and reception, and a document-typing service. The diverse services allow the center to reach a variety of users. For example while the computers are used mostly by grade school and high school students, the telephone services are used by customers across a wide range of ages, levels of education, and nationalities. Most of the users are Dominicans and Haitians who communicate with relatives and friends living in other countries.

The Internet is used generally for social networking, live chats, and e-mail. The YouTube site is quite popular.

The venue is often subjected to power outages nearly every day and can last up to eight hours. The venue has a backup power supply, but it only lasts about five hours, which is seldom adequate given the length of many of the outages.

The Moab cybercafé is particularly oriented toward supporting students and education, and the owner has banned all computer game software. He also helps users with information searches and responds to inquiries on the uses of certain computer programs, but he does not charge for this assistance. Interestingly, the owner does not perceive his assistance as a service. During the

survey for the study, the interview was interrupted several times by users who asked for his help. He responded promptly in each case.

SUCCESS FACTORS AND RECOMMENDATIONS

The following success factors and recommendations emerged from this study:

- The national and local governments need to redirect resources to small public libraries, and the libraries need to update their collections, provide ongoing training for the staff, improve and update the facilities and infrastructure, develop and present activities that will draw the local population to the facilities, and collaborate with other libraries to access other resources.
- The public library system should be strengthened to prevent the negative impact on reading and information access projects that have occurred in the past when there was a shift in government administrations.
- The State Secretary on Culture, in coordination with the municipalities, should inventory the resources of small libraries with regard to the human resources, information, and infrastructure to identify the most urgent needs and to create opportunities to collaborate and share experiences and good practices.
- Library and telecenter coordinators need to seek collaboration from NGOs to improve the capacities of the staff in the venues, implement the strategic uses of ICTs as tools for development, and establish a local identity and community partnerships.
- The State Secretary on Culture, together with interested Departments of Bibliotecology, should form a network among public libraries and create a website

that fosters collective creation and sharing. To accomplish this goal, it would be necessary to train the human resources to generate human networks and support online activities.

- Indotel is currently in a project-conformation stage. However, it should move forward and provide telecenters with adequate hardware and software and fully train the staff. All of this activity is needed in order to diversify the roles that telecenters play within each community – to strengthen the integration of the community with the telecenters, to promote the venue identity, and to support the venues financially. For example, a community journalism project using digital tools could be developed to document customs, cultural expressions, characters, history, and community news. Such projects could, in turn, be integrated through the creation of an online network to allow people from the different communities to know what is happening in other parts of the country.
- Indotel should explore strategic uses of ICT applications, especially the Web 2.0 tools that Dominicans are so fond of and which allow for new learning methodologies that integrate social appreciation and collaboration. Indotel should also design more flexible regulations in relation to telecenter service charges that would improve the sustainability of the various hosting organizations and the project as a whole.
- National and local government agencies should design site-specific budgets and allocate funds to develop community library outreach programs and initiatives.
- Librarians/library coordinators need to develop community activities that coincide with the local cultural and entertainment practices. For example, they could organize chess tournaments that would present the libraries in a new and user-friendly

way. It would also draw the people to the library to access information in new ways that would be more dynamic and entertaining, while promoting the perception that libraries are open to everyone. For this initiative to be effective, librarians and administrators would have to become more open and accepting of their new role, and focus on the issue of why adults do not frequent the libraries. The latter is especially important for smaller libraries and the educational role they have achieved in the communities.

CONCLUSION

Perhaps one of the greater limitations imposed on this research was the lack of transparency of the government offices that failed to support and facilitate the research. It also is important to note that the lack of availability and the poor quality of the statistical information about all of the topics addressed in the study severely limited the results and effectiveness of the findings, recommendations, and conclusions of this investigation.

Another limitation the researchers faced was the limited time available to conduct the fieldwork and complete the data analysis. There were also no community reports that would allow the researchers to assess other information sources, and there was no opportunity to visit and survey locations that lacked access venues, or to complete a comparative analysis.

Still, the researchers firmly believe that the research is relevant because it highlights the role of accessible public information venues as knowledge providers, mediators, and managers. This picture establishes a notable difference between accessing relevant content and being surrounded by data that does not always make sense.

Among the many lessons learned in the course of this investigation, it is important to highlight the value of cultural factors as a determining element

in the definition of information and the way that information is transmitted. Furthermore, it also is important to note the value of incorporating communities as a success factor in the work of the venues, and the appearance of a new role for information managers.

The results of this project are expected to encourage discussions, reflection, and sharing among the entities and stakeholders linked to information management and decision making to develop practical initiatives and projects so resources can be appropriately allocated while avoiding duplicated efforts. The available information also is expected to serve as a tool for strategic decision-making in planning projects to improve public access to information venues, whether by creating public policies or investments of national or international cooperation.

The researchers strongly recommend additional investigation to: 1) document the lessons learned in the different venues, 2) approach the topic of municipal libraries, and 3) conduct an in-depth study of venue attendance and the relevance of content they offer..

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Chapter 16

Public Access ICT in Ecuador

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EXECUTIVE SUMMARY

Ecuador is a small, sparsely populated country in northwestern South America with an ethnically diverse population estimated to be 13.8 million. The land area covers 256,371 sq km, and the diverse geography includes coastal plains, dense Amazon rainforest, and rugged highlands in the Andes Mountains. The Galapagos Islands in the Pacific are also part of Ecuador. The country is bordered on the north by Colombia, by Peru on the east and south, and on the west by the Pacific Ocean.

The capital city of Ecuador is Quito, and the nation's government functions as a presidential republic with an executive branch that includes 25 ministries. The president is elected to a four-year term and appoints the cabinet and provincial governors. President Rafael Correa took office on January 15, 2007. Provincial mayors, aldermen, and the parish boards gain office via direct elections. The land is divided administratively among

24 provinces, each of which has its own administrative capital. The provinces are divided into cantons that are further subdivided into parishes.

The population is ethnically diverse. Mestizos form the largest ethnic group (65% of the population) and are the mixed descendants of Spanish colonists and indigenous people. Amerindians comprise about 25% of the population. The white population is composed mainly of descendants of early Spanish colonists, as well as immigrants from other European countries, and account for about 7% of the population. The small Afro-Ecuadorian minority is largely based in the Esmeraldas and Imbabura provinces, and makes up 3% percent. Spanish is the official language and is also the first language of 94.4% of Ecuadorians, but several indigenous languages are spoken, the most important being Quechua.

The public education system is free and in 2006, the literacy rate was estimated to be 90.9%. Attendance is mandatory until age 14. The quality of the public school education is far below the levels needed, and class sizes are often disproportionately large. Lower-income families often

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find it necessary to pay for education, and the Ministry of Education reports that only 76% of the nation's children finish six years of schooling. In rural areas, only 10% of the children go on to high school, and government statistics show the mean number of years completed is only 6.7.

Gender is a significant nationwide inequity that owes its origins to a long-standing cultural tradition that strongly favors males. Illiteracy is higher among women (12.30%) than men (10.59%). Language, socio-economic status, education, gender, and location (rural/urban) are especially relevant to access and use of information and communication technologies (ICTs) in Ecuador.

Largely because of these defining characteristics, Ecuador was selected to participate in this study. The research was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. It assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes. The study placed an emphasis on the information needs of underserved and remote communities and groups.

METHODOLOGY

Katia Sotomayor, an anthropologist, and Juan Bossio, who has a Master's degree in Information Systems, conducted research for this study. Both have several years of experience as researchers, including ICT-development issues. They were assisted by a number of university-trained individuals who conducted field studies and surveys in the various public libraries, telecenters, and cybercafés.

The research process started with an exhaustive literature review that included academic documents and statistical information about ICTs, inequities in Ecuador, venue types, and reports about specific projects related to each venue. Then the research focused on specific venues.

VENUES SELECTION

The individual venues identified for this study were selected because they met two criteria. They had to be open to the public and be distributed throughout the country. Consequently, the study was then focused on public libraries, telecenters, cybercafés. Public libraries and cybercafés are widely distributed, while telecenters were considered because they are oriented toward underserved communities and groups.

There are other information venues in Ecuador but they were excluded because they did not meet the selection criteria. For example, municipal libraries were excluded because they are located only in urban areas. Each municipal library is different depending on the support it receives from its local municipal government, and there is too little reliable information, data, or documentation about them. University libraries were excluded because they are located only in urban areas, and they are generally restricted to a limited user base.

Inequity Variables

In general, venue use and the access to information and ICTs are most strongly influenced by socio-economics, education, age, and gender, and also by the location of the venue. Not many venues in Ecuador provide free access to information, especially true of venues equipped with ICT services. Consequently, the low-income population is seldom able to afford the user fees. People in the middle-income class spend very little on accessing information in the venues and prioritize more basic needs such as food, clothing, and shelter. They do not perceive access to information as a basic need, and, unfortunately, neither does the government. People at the higher-income levels are the most frequent users and have greater access to information through personal computers as they often have Internet connections at home.

There is a strong direct correlation between education achievement and income, and the education level usually defines the kind of content

that people typically seek. People with little or no formal education generally need to have information presented to them in a simple language and format, and for technical information to be useful to them; it needs to be reformatted appropriately. Those people seldom have any technological capacity and are usually unable to use ICTs.

The economically active population has more discretionary income to pay for accessing information. Age usually influences access to ICTs and also influences the types of ICT services most often used (entertainment, communications, or business). Young people are the most active ICT users, and use ICTs mostly for communication and entertainment.

There were no recent studies available for the researchers to quantitatively assess the effects of gender inequities with regard to access and use of public information in the venues. The researchers were limited in their ability to assess how gender differences affect the possibilities, needs, or desires to access information through ICTs. One study conducted in 2003 found that 39% of the Internet users in Ecuador were women. Based on that study, and on direct observations, interviews, and surveys, the researchers determined that when combined with age, gender becomes an interesting and particularly complex variable. They were able to conclude that young women had more interest in ICTs than older women.

By far, the single most important variable regarding public access to information is the location of the venue. Categorically, rural regions in Ecuador have fewer available information services and less access to ICTs. The low population density in the remote and rural regions meant that the people in those regions face constant difficult information access, and some rural people have virtually no access. The large telecommunication service providers do not penetrate rural areas because the access cost is too high, the purchasing power of the population is low, and the combination is not profitable.

Based on the observations, interviews, and surveys conducted during this investigation, it was concluded that access to information and ICT services is most directly influenced by age, socio-economic status, geographic location of the venues, and educational achievement.

Data Collection

The data for this research study were collected through individual interviews and surveys. Twenty key stakeholders, operators, and users were interviewed to provide information about each of the selected venues, and about the ability of the public to access public information and ICTs.

The researchers applied two different surveys to gather data from operators and users of each type of venue, making a total of 114 interviews. Forty-six percent of the surveys were applied in public libraries, 13% in telecenters, and 40% in cybercafés. Of surveys conducted in 14 locations, 6 were in rural areas and 8 were in urban areas. Unfortunately, the researchers were unable to contract with local researchers, and could not obtain as many overall survey responses as had been expected. To identify and determine how many venues were established in telecenters, the researchers resorted to an exhaustive search on the Internet.

OVERALL COUNTRY ASSESSMENT

Public Access to Information

In Ecuador, the access to relevant, opportune, understandable, and usable information is limited. Marginalized groups rely on social networks to access information, but the method is inadequate. Also, public libraries and the few other more traditional information services are almost never viewed by those marginalized groups as valuable information sources.

A National Library System (SINAB) exists and works to increase and encourage access to libraries, but its policies and library services target students rather than the overall population.

The Internet is used increasingly to access information, often as an extension of social networks. Internet connection costs in Ecuador have been slowly decreasing, but they still remain higher than in neighboring countries. People who do not own a personal computer, or who have an Internet connection at home, at work, or in the places where they study, commonly access the Internet in cybercafés. Still, the services in the cybercafés are not affordable for everyone. A few scattered libraries and telecenters offer Internet access free or at low cost.

Inequity, Environment, Access, and Capacity

Access to information and the capacity to use ICTs effectively are strongly affected by inequity variables, especially by the high poverty rate. The levels of inequality in Ecuador have increased (the GINI was 0.43 in 1995, but 0.46 in 2006). When considering basic needs, 45.8% of the population lived in poverty in 2006.

The location of the venues also is an important variable. The rural population suffers a much greater level of poverty (82.2%) than the urban population (24.8%). In the Amazonian region, the rate is 71% versus the rate in the coastal region at 51.4% and in the highlands at 36.9%. According to a World Bank report in 2005, the native population in Ecuador is the poorest segment. Eighty-seven percent of them live in poverty as compared to 61% of the non-indigenous people.

In 2001, 11.46% of the total population was illiterate, and the illiteracy was unequally distributed. Illiteracy among women (12.3%) was greater than among men (10.59%), and was twice as great among rural populations (16.85%) than among urban populations (8.13%).

Among native populations that speak only the native languages, 43% are illiterate, while only 24% of those who are bilingual (native language and Spanish) are illiterate. Access to formal education is also unequal, with Ecuadorians overall attending an average of 5.98 years of school. Urban people average 6.97 years while rural people average only 4.37 years. Rural women are the least well-educated segment with an average of only 4.29 years in school.

Ecuador has begun to experience some economic growth, but there is no indication that the improvement has reduced these inequities in any way. The increase in the price of petroleum products internationally was responsible to a degree for the improved economic situation and was seen as a way for the government to increase expenditures. There had been an increase in investments related to the education and telecommunications infrastructure that included programs to improve library services and ICT connectivity in rural areas.

There has been progress in the regulations governing access to public information; however, some limitations have been imposed on the use of VoIP and wireless technology that have adversely affected access and communication. The government, together with various stakeholders, developed a connectivity agenda that directly affected the connectivity infrastructure, e-education, e-health, e-government, and e-commerce. This agenda constitutes a first step, but more projects and stronger actions need to be implemented before the goals of the agenda can be reached.

The lack of access to information and ICTs in Ecuador is the result of geographical, technical, economic, and even certain cultural constraints. The geography in Ecuador presents a difficult landscape for providers to establish wide-ranging information and ICT services. The technology and processes needed to provide those services to geographically remote and rugged places is expensive. However, the government is developing projects and programs to alleviate the situation. For example, SINAB (the National Library

System) is creating new libraries and enhancing existing libraries. The government also has projects to provide Internet access to rural zones and deprived districts in urban areas.

Rural areas represent the most deprived regions in the nation with regard to access to information and ICTs. They are claimed to be the preferred area for SINAB to place libraries and telecenters, but the rural population continues to be more poorly served than the urban population. Although there are not as many telecenters in urban areas, there are far more cybercafés.

The fees charged by cybercafés are generally low, but they are still not affordable by a huge segment of the population. Cybercafés are small businesses and must operate at a profit to maintain their sustainability. They cannot afford to reduce their prices because connectivity is expensive. They are unwilling to extend their services and venues to rural areas because the potential user base is inadequate, and the population is set so deeply in poverty. The only alternative for low-income people is to visit telecenters and libraries that do not charge fees for most of their services.

Technological capacity is important to anyone who wants to understand and process information through ICTs, but many people in Ecuador lack that capacity.

Many of the venues reviewed during the study were not well staffed, and although most of the libraries have the staff needed to provide their services to students, they need different professionals on staff if they expect to draw a significantly larger user base from the public. Cybercafés also lack an adequate staff to be able to introduce technologies to older adults and elderly people. While the staff members in most telecenters have the capacities needed meet community service or social needs, they usually lack the ability to provide technical training.

The public's educational level and intellectual abilities are closely tied with economic status, regional or urban/non-urban location, age, and gender, as is the capacity to adapt to ICT use.

Because illiteracy is higher in women, rural populations, native people, and people with lower incomes, innovative and well-planned practices are needed to help underserved groups and introduce them to ICTs.

Local and relevant content in all of the venues is limited and hard to find. The venues that were studied have very different perspectives with regard to local content. However, given their close supportive relationship with their local communities, telecenters are interested in collecting, translating, and/or developing relevant content to solve specific local information needs, but they rarely have the resources to meet the demand. Because libraries are oriented to serve students, they do not seem to realize the importance of local content. Cybercafés are profit-oriented businesses and have little incentive to develop content.

Information Needs of the Underserved Communities

Information needs are different among different groups and among people within those groups. The difference in those needs is related to a variety of variables that range from gender and age, to cultural factors, to occupations, and so many others. People need information on technical or productive issues in relation to their small businesses, health care, migration procedures and opportunities, human rights, commercial or employment opportunities, legal documentation, financial transactions, government policies and initiatives, and a host of other subjects that affect the quality of daily life.

In rural areas, where agriculture is the main economic activity, farmers need technical information to improve production, learn market prices, find new market opportunities, or understand environmental preservation. Rural women need information about human rights, health, and childcare, while young people need information to support their education activities and locate job opportunities.

In urban areas, small entrepreneurs need information to improve their production, learn marketing methods, and sustain their businesses. Urban young people seek information about education, employment, and leisure and social activities.

Non-Spanish speaking people need information in their own language, and there is a strong need to have appropriate content translated. The entire population needs timely and accurate information about regulations, government services, rights, health care, finances, weather, and migration issues delivered through a medium they can readily access and absorb, and at a venue they can easily reach.

Public information services, and especially public libraries, should be the source for such information and should be staffed with skilled, knowledgeable, and motivated people to deliver the services.

Economic Policy and Regulatory Environment

The Ecuadorian economy depends strongly on the income from petroleum exports. In 2007, that income represented 60% of the national economy. The recent rapid increase in the international price for oil produced revenues that allow the government an opportunity to sharply increase domestic allocations.

The investments dedicated to support the access to information in Ecuador have for the past several years been orientated toward the education sector. In 2006, the central government budget allocated 9% (UD\$923.2 million) of its total to support educational initiatives, and in 2007, that figure increased to 11% (US\$1,190.8 million). That increase was directed towards increasing the infrastructure in the education system that, in terms of information access, was focused primarily on connectivity provisions and content platform development.

The intensive growth in the telecommunication sector, and the renegotiation of contracts with service providers, guaranteed an increased income over the next few years from the collection of funds from the FODETEL (the Fund for Telecommunication Development). The amount has been set at the equivalent of 1% of the telecommunications company service invoices. The increased revenue from this source might permit an increase in investments that will allow broader access to ICTs among the underserved. That, in turn, could foster the creation of relevant content to improve the conditions among the underserved regarding their specific needs for e-education, e-health, e-government, and local economic development.

More investment and better policies to provide access to information are closely linked. The “Ley Orgánica de Transparencia y Acceso a la Información Pública” (the Law of Transparency and Access to the Public Information) signed in 2004 constitutes a positive step towards broader access to information for the civil population. Nevertheless, the features of this law are not yet fully implemented in all of the national and local governmental agencies. The regulations governing public Internet access venues and cybercafés impose certain restrictions on the venues that might want to offer VoIP services, and leave the majority of cybercafés in the position of operating illegally because they cannot afford pay the fee to register as required by law.

The Asamblea Constituyente (constitutional assembly) has discussed a project to control broadcasting and telecommunications and establish the government as the regulator over public and private communication venues, as well as over alternative and community venues. The project would require radio broadcast frequencies to be distributed equitably among these options. Additionally, it would prohibit the concentration of licenses among a limited number of owners and guarantee universal access to the media without

discrimination. If this project is approved and the constitution ratified, a more equitable distribution of the radio broadcast frequencies will introduce changes that could benefit community initiatives that now have to compete with the commercial media for frequency allocations.

A revision of governmental policies that regulate access to information would show that the use of ICTs, like the Internet, has established a paradigm reinforced by the public perception. Given this perception, the larger investment projects related to access to information have a strong technological component, but there are no similar large investment projects aimed to expand library services.

The high cost of introducing such a technological component into large investment projects is given as the reason for which many information access projects often do not include capacity and content development or prioritize connectivity. Consequently, connectivity remains low for most of the population. There are, however, a few new projects especially devoted to education, health care, and e-government that are constructing platforms with local content.

Collaboration Practices Across Venues

Cybercafés, libraries, and telecenters are the main venues to access information and ICT services in Ecuador. Despite how they face some common problems, they have not developed alliances or collaborative practices to solve their mutual problems, yet there are several opportunities that could be developed.

Cybercafés face high Internet connectivity costs while trying to serve the lower-income population. Their operating costs would be reduced if they were to share a space inside public libraries. This existence of cybercafés in libraries would also attract more library users, and the libraries would provide a needed service (Internet connection) to

their current users. The change would also attract cybercafés clients, including non-students.

Telecenters have similar problems as they work towards financial sustainability. Their strong relationship with their individual communities would allow them to develop and expand their services, using an access to the Internet provided by a cybercafé. Similarly, cybercafés can enlarge their user base by offering special services adapted from telecenters.

Legitimate Use of Information and Resources

The definition of legitimate use of information and resources depends on the service provider. Access points financed with government or community funds consider it legitimate to allow access to information on health, education, or development purposes. Uses related to entertainment, social networks, or chat sites are usually banned or restricted at libraries that offer free access to the Internet.

Telecenters are less restrictive, and some promote using social networks and blog development as a way to express opinions about community affairs. Still, they usually restrict or prohibit video games, and they typically prohibit downloading music and movies because of bandwidth limitations.

There are no such restrictions at venues such as cybercafés that charge a fee for access, although cybercafés sometimes restrict certain services, and, again, this is usually a prohibition against downloading music and movies because of a bandwidth limitation, but the restrictions are not based on a question of legitimate use.

VENUE ASSESSMENT

Public Libraries

Public libraries in Ecuador depend on SINAB, which is a decentralized office within the government's Education Department. There are 557 public libraries distributed across Ecuador, and rural areas and deprived urban neighborhoods are prioritized as places to establish libraries. Library services in the public libraries are oriented towards students and do not regularly offer services or content to meet the needs of the general population. Public libraries face a variety of different problems and seldom have any professionally trained staff, commonly lack ICT services, and usually have a very limited operating budget.

Public libraries are very widely distributed. They are present in 80% of the nation's cantons, and in all of the cantons in seven provinces, but there are still not enough of them to meet the needs of the whole population. Fifty-seven percent of the libraries are in rural areas, 5% in peri-urban zones, and 38% in urban zones, and most are in low-income neighborhoods. At the regional level, 48% of the libraries are in the Highlands, 18% are in the Oriente, and 34% are on the Coast.

Nearly all of the public libraries lack ICTs, and only 11 can offer ICT services to their users. Most of the services offered by the public libraries are free of charge, but some of the libraries charge fees for services related to ICTs, such as photocopies or scanning.

Public libraries almost never have a professional librarian on staff, and this lack does not allow for the design and development of services to serve a wide range of users. The libraries offer content oriented to serve students almost exclusively, and that narrow focus is widely supported by the common public perception that libraries exist only to serve students. The issue is compounded when the population at large does not use libraries because they do not find, or even

expect to find, information or services appropriate to their own needs.

Public libraries are not considered in specific government policies that govern their development, and, in that sense, political support for the libraries is quite low. The libraries depend completely on the funds allocated by the Education Department, which makes the libraries sensitive to budget assignments to the Department. The allocations are inadequate, even though the national economy expanded in recent years, and the Department's funds are secure. The economic growth experienced in recent years has permitted increased spending in several different sectors, including education. That portion of the general budget dedicated to education rose to 11% in 2007 (US\$923.2 million), and from that amount, the public libraries received only US\$1,826,925.

Case: Biblioteca Pablo Palacio - Biblioteca Modelo SINAB

The Library Pablo Palacio was inaugurated in 2004 in the capital city of Quito. It was placed near a university and the focus of its collection on educational topics explains why most users are university students. This library is different from the majority of the libraries of the SINAB system where most of the users are mainly students from the lower-level public schools.

The Library Pablo Palacio is usually very crowded, and typically has an average of 60 users each day. There are seven full-time employees, including a librarian, an Internet room manager, who also manages the photocopy machine, two technical support people, two others who serve the visitors, and a watchman.

The library offers a reference service, photocopy service, a children's room with books and games, and a computer room with four computers that have Internet connections. Users have free access to the Internet for the first half hour, but Internet use is restricted to searches for academic information. The library prohibits the computers

to be used to access e-mail, chatting, and similar socially oriented applications. In addition to helping users, the library staff uses the computers to perform technical processing, such as cataloguing and classifying bibliographic material distributed in all of the SINAB libraries.

As with other libraries, the Library Pablo Palacio receives materials and additions to shelved items from the SINAB headquarters. It sometimes also receives donated support from local individuals.

Telecenters

For this study, telecenters were considered to be venues to access ICTs that could be used for development; different organizations, such as CBOs, NGOs, local governments, and others promote telecenters. Under this definition, 45 telecenters were identified, but the 530 telecenters installed by the PROMEC project were excluded because the contract with the provider was cancelled after it was concluded that the provider did not meet its contractual obligations. The contract termination left the operation and sustainability of those telecenters in doubt.

Many telecenters have been nurtured on community-needs assessments, which provide them with an important tool to develop services and content. They are also capable of performing capacity-building activities using ICTs involving issues important to the community. By doing so, they contribute to the general social appropriation of technology.

Most telecenters are located in rural areas or in underserved localities where private investors have little or no interest in providing Internet connectivity and other similar services. High connectivity costs mean that most telecenters face financial sustainability problems, and, most of the time, they lack any form of sustainability strategy. Typically, when their external funding ends, the telecenters may close.

Telecenters have not reached significantly high numbers at the national level, but their importance as a whole goes well beyond the service benefits provided by each single venue to a group specific people. The strategy behind the implementation of telecenters has had a considerable influence among policy and decision makers because experience has demonstrated their usefulness in bringing ICTs to the rural population, even though there have been some failures along with the successes. The overall effect has contributed to shape policies and projects, such as the PROMEC project, despite its highly visible failures.

Telecenters usually are located in rural zones (67% of the present venues), or in economically depressed urban localities where they commonly are the only viable sources of public information. The provinces with the most telecenters are Azuay, Chimborazo, Guayas, and Pichincha.

Young people who have developed computer skills are the ones who most often use the services and technologies offered by telecenters. Telecenters are usually characterized by the programs or services they develop so that they appeal to the widest range of people who have an interest in ICTs. Few telecenters offer their services free, but the fees are generally low enough to cover operating costs and to make them affordable to most people.

The telecenters are very popular with the local population, and in many cases they are community projects, which allows them to better serve the needs and capacities of the population. This empathy with the community allows telecenters to design and offer locally appropriate services, and also to participate in the community processes.

Most venue operators and users lack the technological capacities to make full use of the ICTs. However, ICTs are used as a way to solve specific locally relevant problems. This ability to meet such relevant needs builds the confidence in ICTs among the public who perceive a telecenter as a practical means for improving their quality of life.

The development of a practical telecommunication strategy in Ecuador has established a favorable environment for the creation of new telecenters to provide connectivity to underserved communities. However, the failure of the huge Telecentros PROMEC project generated a change in perception that now prioritizes public schools as Internet access points. In spite this situation, the FODETEL, as a result of contract renegotiations and the growth of the telecommunications market, provides an opportunity to finance and sponsor telecenter creation by CBOs, local governments, and NGOs.

Case: Colinas del Norte Telecenter

Colinas del Norte Telecenter is located in the community house at the Vista Hermosa sector of the Barrio de Colinas del Norte, in the capital city of Quito. The venue is sponsored by the Fundación ChaquiNet. The venue is managed by the community to serve the local neighborhood, and much of the activity focuses on assisting relatives of Ecuadorians who have migrated to other countries.

The telecenter provides Internet access and operates with four computers purchased by the community. The computers do not have a permanent connection, and the users must buy a prepaid card to gain access. Another important set of services provided by the venue includes childcare, after-school tutoring, library services, a game room, a video collection, an audio and video room, and technical training programs coordinated by a national institution (Professional Training Center, or SECAP). Additionally, the telecenter offers English language and technological courses conducted by Fundación Chasquinet.

Most of the telecenter's users are working mothers who use the childcare service. Students also use the venue to access information for schoolwork. The telecenter helps to solve many community needs because it was designed around known needs and drew upon the established close

integration with the community. That combination allowed the telecenter to become a facility that was readily adopted by the community.

Cybercafés

Cybercafés began operating in Ecuador in 1998 to serve tourists in the scattered tourist centers. Through the years, cybercafés appeared throughout the rest of the nation and evolved into the primary means for the resident population to access the Internet. For those people who do not have Internet access in their homes, or who do not have access to a personal computer, cybercafés meet their need to use ICT services. Cybercafés only offer connectivity but do not develop content, yet the public consider the venues to have great value.

Cybercafés are most heavily concentrated in urban areas, especially in the larger cities, and are used mainly by young people for communication, information searches, and entertainment. The venues often serve as meeting places for young people to gather and socialize. Adults and older people seldom frequent cybercafés, largely because they lack the computer skills and cybercafés do not offer training.

In 2006, 1,600 cybercafés were registered in the Ecuadorian Telecommunication Superintendence (SUPERTEL), but most cybercafés are not registered, and there is little available information about them. The researchers were not able to identify the rural/urban distribution of cybercafés because SUPERTEL does not maintain those statistics. But according to a number of knowledgeable experts, more than 90% of all cybercafés are said to be located in urban areas.

When cybercafés first began to appear, the fees they charged were ten times higher than they are today. The fees have been going down to reflect the decreasing cost of connectivity, and also because more cybercafés were opened, which created more competition. Still, the cost to connect to the Internet in Ecuador remains higher than in

any other nation in Latin America, so cybercafé fees still are beyond the reach of many potential users in the lower income groups.

Cybercafé use has become completely integrated into the general culture and is now routine. This is particularly true for young people who search the Internet for information about education, entertainment, and communication. Older people use ICTs far less frequently because they commonly lack the technological capacity and usually do not consider ICTs and computers to be useful ways to meet their particular information needs.

There are no public policies at present that directly pertain to cybercafés, although the continuing reductions in the cost of Internet connectivity, and the expansion plans of many venue operators, are creating an increasingly favorable environment for cybercafés. As more business opportunities appear, more cybercafés will begin operating. And if the connection costs continue to drop, more venues will open in rural regions and underserved urban regions.

Many of the long-standing constraints that limit the operation of cybercafés remain in place and may not change anytime soon. For example, the regulations that require cybercafé registration (with annual fees), and that also regulate the services offered by cybercafés, especially regarding the use of VoIP service, form significant barriers to the legitimate operation of a majority of cybercafés.

Case: PapayaNet

PapayaNet is a chain of cybercafés in the city of Quito. The first cybercafé in the chain opened in 1998 to serve the tourists who concentrated in the Mariscal neighborhood. The venues proved to be such a success that there are now three venues that serve the area, and the business plan was extended to provide the tourists with an environment that offered them Internet service, telephony, and food service. PapayaNet sites now offer a consolidated

cybercafé venue that also offers wireless connections. They are staffed for the most part by young people, many of whom are university students who work part-time. The users are often high school or university students, professionals, and tourists who use the Internet access for communications and entertainment.

Venue Summary

Cybercafés have increased in popularity and distribution to where they have become the main points of access to information and communication in Ecuador. Public libraries and telecenters are the second and third choices, respectively, and in all three of the venue types, young people constitute the majority of the users. Libraries are popular for young people because the services and content are focused on them, while telecenters and cybercafés are more popular among young people than older people because the older people generally have lower levels of ICT skills.

Libraries and telecenters commonly offer skill training, although they each present a different emphasis. However, telecenters are often the preferred training sites in many communities and commonly base their efforts and services on their thorough knowledge of the community needs.

Services at telecenters and libraries are affordable for a wide range of people, while the cost of services at cybercafés constitutes a barrier for people with low incomes.

SUCCESS FACTORS AND RECOMMENDATIONS

There are a great many information needs within the population of Ecuador that are currently not being met adequately by the existing public access to information and communication venues. The inadequacies apply to many important information needs. For example: 1) migration procedures and remittance system alternatives,

2) small business and employment opportunities offered by several NGOs and governmental offices, 3) community development opportunities (fair markets, tourism, and the environment), 4) health care presented as accessible, understandable, opportune, and precise information on health issues, and 5) agricultural issues, such as market prices, sowing and harvesting recommendations, weather forecasts, and technical issues. There are a few local or thematic agricultural information systems and services from NGOs, but they, too, are inadequate to meet the need.

Public access to the information and communication venues is affected variously by the location of the venues, technological capacities, and the social and economic environment. In general, location is the most relevant variable for access issues, and strongly affects the rural and remote populations. The political environment seems to support telecenters favorably, but that support must extend beyond provisions for the infrastructure and provide greater support for practical and inexpensive technologies.

The general lack of technological capacity in the population and adequate, locally relevant content are pressing needs. Capacity issues marginalize important groups of people who could greatly benefit from ICTs. There is a vast amount of useful information in repositories around the world, but for it to be used effectively in Ecuador, it needs to be reformatted and translated in simple terms.

Success Factors

ICTs, particularly the Internet, have become the preferred way for young people to access information, especially in urban communities, but that is rapidly becoming true in rural areas as well. However, those people who lack the capacity to use ICTs continue to use more traditional ways to access information. Fortunately, the Internet can be used to enrich such traditional approaches, often in ways that can improve the quality of life for the users. Unfortunately, that type of use is largely an

ideal as some groups –older people, people who cannot speak or read Spanish, the illiterate, and the inhabitants of remote areas, and so on – will most likely remain marginalized.

These underserved communities and groups in Ecuador would benefit by accessing opportune, relevant, usable, and trustworthy information through ICTs and the various Internet resources. But no available, practical, or politically supported way presently exists to collect and organize that information, link the sources of that information through social networks, develop appropriate web-information services, or build capacity among the potential user base.

Locally relevant information should be reformatted, translated, organized, and disseminated in appropriate ways to meet the information needs of the nation's population. Such information should reach social networks by being accessible through web-information services, or in public libraries and other public venues.

The key factors that affect the linking of those information sources to social networks are social participation, community commitment, and services designed to consider community needs, CBO involvement, and appropriate dissemination of the information. Capacity development focused on purpose-oriented training and technical capacity building are a critical need among all levels of the political, economic, and social segments of the Ecuadorian society.

Considering the venues and how they function, the success factors point to the need for a well-trained staff that is motivated to focus on serving the users while understanding the local needs and realities. The staff must encourage local participation and support and demonstrate the value of the services to the users. Each venue needs to develop and implement a practical business plan, and this is especially important to those venues that operate as profit-oriented businesses. They need to identify their own particular core business and audience, and aim their marketing towards that end.

Public libraries have not integrated ICTs as the principal tool to provide information and communication services. There is no doubt that ICTs would be a strong means to improve library services, but if the libraries do not reorient themselves away from the single limiting student user base, and then broaden their target group to include the general population while developing staff capacities and content, ICTs as a tool will not be relevant.

Recommendations

The following recommendations emerged from this study:

- Develop information systems for underserved communities and groups while giving special consideration to the needs of individual localities and population segments. Every group has preferences about sources of information, immediate needs, and the capacities to obtain and use information. These needs are critically important to the success or failure of any such project or initiative.
- Develop training programs on ICTs as they specifically apply to special groups, such as women, illiterates, people who do not speak or read Spanish, and older people.
- Provide governmental funds to CBOs or NGOs to establish and furnish telecenters in rural and underserved areas. The close relationships that CBOs and NGOs have with communities allows them identify their particular information needs and aid in the design of appropriate services.
- Public libraries should be reoriented to become more than school libraries and must develop ways to serve the needs of the general population. A change of this magnitude will require the library staff to have the capacity to develop and present the services to a wide range of users.

- Continue and expand programs that provide access to the Internet in rural and underserved areas, and provide and support policies to reduce the cost of Internet connectivity.

CONCLUSION

In Ecuador, the services in cybercafés are associated primarily with communications, entertainment, and acquiring locally relevant information that meets the immediate daily needs of the users. Telecenters also are used for communication and to provide information, but not for entertainment, while libraries are used mostly by students to support their educational needs.

Given that set of conclusions, the study further revealed that access to information and communication in Ecuador across formal channels, such as libraries, telecenters, and cybercafés is restricted to certain groups of the population. While the young population forms the largest group of users among all venues, it was concluded that their information needs are still not fully satisfied by these channels. Even with the widespread acceptance of ICTs, informal channels, such as social networks, remain the most important source of information for the Ecuadorian population, especially among the adult population and those with limited socioeconomic means and little or no formal education.

This research is expected to aid policy and decision makers to deliver greater access to public information to the Ecuadorian people, and to better serve the rural and underserved population.

The researchers determined that there is little substantive statistical information available to support research of this type, and that the available information very rarely includes mention of the more important variables, particularly in regards to any references around accessing to new technologies.

As for the venues examined for this study, there was little available information about cybercafés as a group, especially with regard to their numbers or

their distribution across the country. A few libraries maintain a registry of users, but this information is not compiled for any other institutions. In the case of telecenters, a bit more information exists than for other venues, and there are a few reports of specific experiences maintained by the organizations that support and promote the telecenters.

To resolve this lack of basic information, the researchers received some help from different individuals and institutions that work directly with this issue. In particular, the researchers were aided by invaluable information provided by Chasquinet, Infodesarrollo, Fondo de Solidaridad, Secretaría Nacional de Telecomunicaciones, Asociación para el Progreso de las Comunicaciones, Sistema Nacional de Bibliotecas, and Colegio de Bibliotecarios de Pichincha.

Further research regarding these subjects is highly recommended. The following are specific points that should be examined:

- Determine the most practical and efficient ways to use migration phenomena to accelerate the use of ICTs in underserved communities, facilitate social networking through ICTs, and provide the needed resources to rural areas through libraries, telecenters, and cybercafés .
- Research the sustainability factors that affect telecenters and analyze successes and failures to provide recommendations.
- Determine how to involve cybercafés in programs to provide, use, and disseminate useful and appropriate information in collaboration with other venues.

Chapter 17

Public Access ICT in Honduras

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EXECUTIVE SUMMARY

The Republic of Honduras is a small semi-tropical country in Central America with a modest economy based largely on agriculture and, to a lesser degree, on import/export trading, financial services, and a small amount of manufacturing. Approximately 92% of the population is Mestizo, which is defined as a mixed ethnicity of European and indigenous origins. The remaining 8% of the population is composed primarily of indigenous groups, including the Lencas, Garífunas, Chortis, Payas, Tolupanes, Misquitos, and Tawahkas. Spanish is the official language, but five indigenous languages also are spoken.

Honduras suffers a remarkably high level of poverty, high unemployment, and a near-total absence of public policies, projects, and programs

to address the basic needs of the population. The poverty level surged to a new high following Hurricane Mitch in 1998, and the lack of social services drove a lingering migration phenomenon that continues to characterize the country. Recent estimates indicate that approximately one hundred thousand Hondurans leave the country each year, and most are believed to travel to the United States or Spain.

In addition to the socio-economic impact of the migration, Hondurans face an ongoing struggle with HIV-AIDS and reproductive health and has one of the highest levels of HIV-AIDS cases in the region. Compounding the extensive economic and health issues, Honduras has an inadequate educational system, with an estimated half million Hondurans who are illiterate.

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The Honduran government implemented its Poverty Reduction Strategy in 2001, which has the support of the United Nations Development Program (UNDP). The strategy aims to: 1) Accelerate equitable and sustainable economic growth, 2) reduce poverty in rural and urban regions, 3) produce greater investment in human capital, and 4) strengthen social protection for underserved communities and groups. Although poverty is a nationwide issue, it is clearly accentuated in the rural areas, and the rural areas are strongly affected by major limitations in the coverage and quality of social services. The rural population represents 53% of the nation's population and has an 85% poverty level.

Each of these issues severely affect public access to information and communication technologies (ICTs), which is why Honduras was selected to participate in this study – because of the value that access to ICTs can bring to the country. The study was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. It assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes. The study placed an emphasis on the information needs of underserved and remote communities and groups.

The need to know and understand the information processes that are available to the people is relevant to this analysis. The assessments developed during this investigation were aimed to provide an understanding of: 1) the public access to information and ICTs in very specific cases in Honduras, 2) the social, economic, and political processes surrounding public access to information and ICTs, 3) the needs of the population with regard to information, adequate information venues, and the type and quality of the available information, and 4) the support given to existing initiatives.

The results were based on specific cases, and few nationwide generalizations.

This research was developed in phases, with the first phase based on a literature review, on-site visits, surveys, and interviews with key individuals. The second phase focused on the fieldwork.

The researchers listed a number of key findings:

- Government policies focus on regulating the access to public information and not necessarily on facilitating public access to information.
- The diverse initiatives have limited economic support from the government.
- Information and communication access venues are affected by the political preference of the users, the venue operators, and the community officials.
- Most of the venue users are children and young students because of requirements imposed by the schools.
- Cybercafés are widely used for access to information, as well as for the communication purposes for which telecenters were created.
- Access to the venues often is determined by the perception of their social attractiveness as gathering places.
- Access to information, and the determination of what is considered to be legitimate information, is controlled largely by the individual venue operators; their judgment is commonly based on subjective ideas of what the operator personally thinks is morally and socially appropriate.
- Because of the migration phenomenon, many people go to the venues to communicate with friends and relatives who live in other countries. As a result, the levels of technological appropriation are generally related to communication processes, particularly among adult users.
- Cybercafés serve an unrecognized social role regarding the way that visitors learn

to use the services, but this social involvement is not generally perceived as a way to learn ICTs.

COUNTRY OVERVIEW

The Republic of Honduras is a small semi-tropical country in Central America with a modest economy based largely on agriculture and, to a lesser degree, on import/export trading, financial services, and a small amount of manufacturing. The capital city is Tegucigalpa.

Approximately 92% of the population is Mestizo, which is defined as a mixed ethnicity of European and indigenous origins. The remaining 8% of the population is composed largely of indigenous people, such as the Lencas, Garifunas, Chortis, Payas, Tolupanes, Misquitos, and Tawahkas. Spanish is the official language, but five indigenous languages also are spoken.

Methodology

The structure of this study was based on a literature review, statistical data, surveys, interviews conducted with key stakeholders and users, and a focus group. The results provided insight into the country's economic, social, and political context with regard to public access to information and ICTs. The specific venues selected for this study were cybercafés and the public libraries of the Riecken Foundation.

Team Qualifications

The Cooperativa Sulá Batsú R.L conducted the research for this study. The organization has extensive experience regarding ICTs and their social impact. That background was particularly appropriate in the investigations in Honduras because the issues have been a developing interest in Central America for several years. Sulá

Batsú's work on this project was oriented towards information and communication processes as they apply beyond the technological platforms. The researchers focused largely on the experiences of social groups and the appropriation and use of technological tools. This study had the support of the Red de Desarrollo Sostenible (RDS-Hn) and Consultics (an Enterprise that works to promote free or open source software) headed by Helen Ocampo and Alejandro Durón.

To gather data, the research team relied heavily on the Internet early in the project. Subsequently, they conducted 104 surveys in the selected venues. Of that total number, 22 were conducted in state libraries, 31 were conducted in Riecken Libraries, 30 were conducted in Knowledge and Communication Community Centers/Telecenters (CCCCs), and 21 were conducted in cybercafés. The surveys were completed in person, as well as via telephone, Skype, e-mail questionnaires, site visits, observations, and a focus group. A number of websites were reviewed, including the UNDP, CEPAL, IADB, as well as a review of the websites of the venues selected for this study.

The study focused on how access is affected by socio-economic conditions, age, educational levels, gender, and venue locations.

In Honduras, the socio-economic condition is the greatest limiting factor in accessing public venues for ICTs. People in the lower-income classes can rarely afford user fees and often cannot afford to travel to a venue. The need to maintain their daily subsistence is of the utmost importance, even if a venue is nearby. In contrast, most cybercafé users are in the middle class and have a certain amount of disposable income that permits them greater access to venues.

Age is a factor in accessing information and ICTs. People under 35 years of age form the vast majority of those who use the venues. Among the users interviewed, the majority used the venue services more for communication than for information searches.

Education levels are equally important among users, with students forming a high percentage of the users. Searches for information are a high priority among younger people who use the venues for their schoolwork, as well as to learn about job opportunities.

Although gender is a long-standing cultural inequity nationwide, the librarians and venue operators stated that they see little overall gender imbalance among their users. However, the people who use the libraries and telecenters tend more often to be women, while the cybercafés have a slightly higher percentage of male users. There were no conclusive data available to explain this imbalance.

Both urban and rural venues were studied, but the initiatives that the research team observed appeared to be somewhat more fully developed in rural areas. The perception was that the initiatives were a greater need in rural areas where there were so few existing venues. The people in rural areas do not yet have as many ways to access information and ICTs as do the urban residents. There are, however, more overall sources of information in urban areas, such as documentation centers, university libraries, and cybercafés.

Because of the significance of migration in Honduras, this variable was added to the scope of the study. There are no special programs or initiatives that target the needs of migrants, but there is information available on foreign job opportunities, as well as information guides on the topic of migration.

OVERALL COUNTRY ASSESSMENT

Public Access to Information

Poverty is one of the greatest problems Honduras faces. When the basic needs of the population are not satisfied, information and ICTs cannot play a significant role in the development of the country. According to Carlos Cerrato, a former coordina-

tor of the CCCCs, information and ICTs are not then seen as tools that can improve the quality of an individual's life. In that sense, and during this study, the researchers did not consider information and ICTs in themselves to be development tools, but that they can become an important means for social transformation and can affect changes that happen in social groups when ICTs are incorporated into everyday life.

Political interests affect access to venues. There have been problems that range from a refusal of payment to a venue operator to having a venue shut down because the venue was thought to oppose the views of the prevailing political party.

The venues selected for this study (the government-sponsored public libraries, Riecken Libraries, and the CCCCs) are the most heavily promoted venues and were generally believed to be the venues most often visited by the public, although there were no actual data to support this belief. These venues have been developed with the purpose of satisfying information needs in urban and rural areas, alike.

Internet access in rural regions is limited most commonly by the relatively high connectivity cost because the link can only be made as a satellite connection. Also, the hardware is expensive, and the government does not allocate adequate funding to satisfy the ICT needs of all the communities in Honduras.

The most visible present efforts to generate a more widespread access to information and ICTs are the result of a combination of the support provided by a number of sources, including the Honduran government and a number of cooperating European participants, most notably Spain and Sweden. Several of the stakeholders interviewed for this study stated that the present level of support by the Honduran government is inadequate to implement and maintain a significant level of technological development. Among the initiatives studied, none of them did more than the libraries did already by delivering books and equipment to the communities.

Access, Capacity, and Environment

According to the people who were interviewed, it was concluded that libraries are most often used by children and students in response to school-imposed requirements. This picture has led other venues to search for ways to change the perception many people have of libraries as facilities that only serve students.

Because the content maintained by libraries is so heavily focused on educational materials to assist students, the libraries clearly do not meet the needs of the rest of the population. Furthermore, there is nothing in the public culture to draw the rest of the population to the libraries. Few people, other than students, can identify with the libraries the majority of the population simply sees nothing socially attractive about them.

In spite of the efforts carried out to implement the CCCCs, most users preferred to visit cybercafés and pay the access fees because of the higher quality of the connectivity. Cybercafés have advanced to meet the need for access to information and ICTs in the way that the CCCCs had been intended to serve. But one of the most important problems that characterize cybercafés is their lack of sustainability.

One of the deficiencies often cited by venue owners and users is that the educational system rarely considers technological capacity and training as a priority, severely limiting the learning process and capacity development.

The development of locally relevant content is rarely found in any of the venues studied, and very few venues make any attempt to develop any content at all. Only rarely is the development of local content even considered in the communities that could benefit most from the effort.

The concept supporting the creation of venues is focused on improving the quality of life for the people and their communities, but, in many cases, the communities show little interest in using the information and ICTs to which they already have

access. There are seldom any valid examples to demonstrate how the information and technology has any direct application in daily life.

Because of the migration phenomenon, people go to the venues to communicate with friends and relatives who live in other countries. Consequently, the call for the technologies among adults is most often directed toward the communication processes.

Cybercafés fulfill a social role regarding the learning processes they represent, but access to technologies is not perceived as a means to develop the communities. The researchers considered that continued use of the venues might eventually lead to the generation of personal and social transformations.

The Honduran policies focus on regulating access to public information, and not necessarily on facilitating public access to information. The government provides only very limited support to any of the existing initiatives. Information and communication access venues are deeply affected by the political preference of the government, the venue operators, and the community officials.

Information Needs of Underserved Communities

The general population in Honduras, and especially the underserved communities, has a need to access current and valid information related to business development, overcoming poverty, and developing activities that will improve the quality of life, as well as learning about financial institutions that support those initiatives. There is a strong general need for current information about such issues as health and child care, human rights, legal matters, educational programs, personal finance, and migration.

Information about sexually transmitted diseases is a critical need, given the extremely large numbers of the population infected with HIV and AIDS. According to data provided by the

United Nations Development Program (UNDP), Honduras represents approximately 60% of all the reported HIV and AIDS cases in the Central American region.

ECONOMIC, POLICY, AND REGULATORY ENVIRONMENT

According to information provided by the World Bank, Hondurans has chronically low income. The nation is characterized by having one of the most diversified economies of any country in Central America, although the level of economic growth is not reflected in the overall condition of the population. Without question, Honduras is one of the poorest countries in Latin American, and the poorest segment of the population lives in the rural and remote regions and survives on agriculture. Honduras implemented a Strategy of Poverty Reduction (ERP), which is intended to reduce the level of extreme poverty by half before 2015.

Honduras displays only a limited development of ICTs and has tried to regulate the activity of information technologies in the public sector. In 1979, the government created the National Center on Information Technologies (CENI) as a specialized entity of the Ministry of Treasury and Public Credit to incorporate information technologies into public administration. However, neither the available technology nor the human resources were adequate; the project failed. The CENI closed in 1995.

Up to the present, the only explicit mention of information technologies in a government plan was found in a document called “My Commitment with You,” which is part of former President Ricardo Maduro’s government work plan for 2002-2006. This was the basis for creating the Presidential Commission on State Modernization that established a strategic vision for information technologies. The plan was implemented and became a public policy so that the sector would be

considered to have strategic importance in national development. However, there are no present policies in effect in Honduras that specifically address public access to information.

COLLABORATIVE PRACTICES

The public could benefit from a collaborative network that would link the Riecken libraries, public libraries, CCCCs, and certain municipalities, but no such link has been developed. The creation of such an alliance would greatly improve the public access to all of those venues. Given the state of the Honduran population regarding technological capacities, there is first a critical need to generate a greater impact on public access through the few present initiatives. Considering the government initiatives and options, a collaborative network must have strong and sustainable government support, because the larger budget needed for venues, such as libraries and CCCCs, would be easier at a national or provincial government level.

Access through the venues to information and communication would improve if it were possible to implement partnerships with organizations, institutions, and foundations that are already associated with the subjects. The diverse sectors seeking to improve access by building the adequate capacities in the users requires sharing practices, experiences, and ideas. If the various parties can collaborate effectively and often, the impact can be greater.

Buzz Factor

The Honduran government has promoted the development of libraries and the CCCCs. Especially in the case of the CCCCs, the focus has been on providing access to ICTs.

To ensure some degree of sustainability, local governments and municipalities should directly participate in establishing and funding venues. The municipality, as a governing community entity,

should become a place where the community determines and understands the initiatives so that when the need to establish a venue appears, the venues are designed to meet the public's needs. Also, locating with decision making at the municipal level would avoid duplication of efforts.

LEGITIMATE USE

Political interests affect access to venues. There have been problems that range from a refusal to a venue operator to having the venue shut down because the venue is thought to oppose the views of the prevailing political party. First and foremost, information is not considered to have legitimate use if it is perceived to be in opposition to any government policy or action. This limitation is a reality in spite of the claims of freedom of expression. In every instance, the official viewpoint on any questionable subject is the only determining factor in deciding legitimacy.

The possibility that an opposing view might be expressed is a strong limiting factor in the amount of support a more widespread access to information and technological innovations might receive.

With regard to the use of technological tools, the ones that are deemed to be legitimate are those tools used for education or for cultural purposes. For example, if a person is using a chat service while a line of people is waiting to use the computer, the user must relinquish the computer to the next person waiting in line. The determination of legitimacy rests with the venue operator, who decides what information can be available in the libraries and what information is provided to users when they request it. The determination ultimately resides in the operator's subjectivity and vision of the prevailing social and political realities.

Shifting Media Landscape

Mobile telephony penetration has been relatively limited in Honduras, and most users are in urban areas. Mobile devices are commonly used to access current news via digital newspapers, to receive payment invoices, and, to a limited degree, to access the Internet. Most users are in the middle and upper income classes, and many of those users are not aware of the alternative services they can receive on mobile units, nor does everyone have access to the same services. Access to news sources depends on the mobile provider and is often only available at a fee.

In the libraries of the Riecken Foundation, chats are used to share knowledge and in the activities developed in the communities through the libraries. People in widespread regions and communities can use the technology to connect, while a member of the Foundation has the role of moderating and fostering sharing among participating users.

In another related sharing mode, there is a forum called "I'm A Librarian." The forum has become a place where librarians share their experiences and information sources.

The Riecken libraries also develop community radio stations in their libraries to transmit news from the communities, library agendas, and programs to encourage visits to the library. Zona X is one such program and targets young people by describing several types of activities and Internet information searches. They sometimes sponsor community debates on topics of national or local relevance. Some have promoted innovator contests where the people from the communities conduct projects that are new to the communities.

VENUE ASSESSMENT

The Public State Libraries are the responsibility of the Honduras Network of State Libraries. They are funded by government agencies such as the Culture Secretary, which is responsible for allocating budgeted funds for the 128 libraries in the network. The network was created in 1994 through an International Cooperation Project from the Swedish International Development Agency (SIDA).

The Riecken Libraries belong to the Riecken Foundation, which has developed 52 public libraries in Honduras. The goal of the Foundation is to promote democratic processes by creating the libraries as inter-generational community facilities, where the public can participate in community activities and processes. The sustainability of the libraries comes largely from the developers of the Foundation, although, currently, a librarian and the Board of Directors are in charge of locating and drawing upon sustainability sources for the libraries.

The CCCCs are telecenters developed by a government agency called the Honduran Council on Science and Technology (COHCIT). COHCIT created 126 telecenters through a project funded by the Inter American Development Bank (IADB) and called it the Project to Broaden the Technological Capacities of Poor Communities (ACTECOP).

Internet cafés and cybercafés have become important venues for accessing information, but they are not organized in a collaborative network because of the competitive nature of their operational business design. Additionally, neither venue type is required to register with the National Council on Telecommunications (CONATEL). During the 2001-2006 period, between 76 and 640 cybercafés were registered. The researchers were not able to locate any reliable information to establish the precise number.

Government policies focus on regulating access to public information and not necessarily on facilitating public access to information,

which creates a situation that severely hinders any promotion of equitable access in the Honduran population. If the government continues to forestall developing strategies to promote access to information, the digital gap in Honduras may continue to be delayed well into the foreseeable future.

Private and government initiatives continue to be the only available means to meet the information and ICT needs of the public, especially among underserved communities and groups. Little is expected to be developed and implemented beyond the existing combination of government supported libraries, CCCCs, Riecken libraries, and cybercafés.

The national government provides very little economic support to the initiatives developed by government agencies, such as the government-supported libraries and the CCCCs. The Culture Secretary is in charge of allocating economic resources for the libraries, but the budget that the government allocates for the Secretary is only 3.36%, from which the Secretary has to also assign support for other departmental areas such as sports.

One of the most important points seen at the venues was the weight of political preferences and how these bear on the abilities of the users to use the venues or to affect the sustainability of the venues. For example, a CCCC was closed to avoid users from supporting a party that opposed the incumbent government's views. There have been cases where a mayor has refused to pay a librarian's monthly salary because of opposing political views.

In the case of the CCCCs, a gap exists between the initial objective and the real contribution to community vision. These centers were created to broaden the technological capacities of low-income communities, but are currently seen as community cybercafés.

The venues target very diverse populations, both in rural and urban areas, and they adapt to the users' needs, ranging from free access

to charging a fee. The venues are used mostly by children and young students. Consequently, government libraries and the Riecken libraries have tried to change the perception people have that the libraries concentrate on student needs to the exclusion of the general population, regardless of age. As a result of that general perception, the older population is not motivated to visit the libraries and cannot identify with the venues or view them as pleasant and entertaining facilities.

The CCCCs are in an unusual position, which makes the public tend to visit cybercafés more than CCCCs, because although the fees are higher, they have fewer connectivity and privacy issues. Cybercafés have come to fulfill the ICT access needs for which the CCCCs were created. But given their profit-oriented business concept, cybercafés have surpassed the CCCC's levels of sustainability. Cybercafés consistently draw more users than the CCCCs. Most users also seem to prefer to visit the venue that is located closest to them.

Locally relevant content is seldom developed by either users or the venue staff, although a modest amount of content has been developed at some of the Riecken libraries and the CCCCs. Users tend to visit the venues to communicate with friends and relatives in other countries far more often than they ever use the technological tools for information searches.

Many individuals have often used the services of cybercafés to enhance their personal technological capacities on their own initiative, given the freer exploration that cybercafés provide. While access to technology does not necessarily lead to a community's development, it is the increased technological capacity of the users that is fostered and serves to generate personal and social transformations.

CASE 1: THE STATE LIBRARY OF MOROCÉLI

The State Library of Moroceli is a small municipal library that loans books and offers photocopying services. Most users are school children. This library has one computer but lacks Internet access, and the facility does not offer any form of capacity building or training. Because of the lack of relevant materials, most users other than school children prefer to go to the CCCC located only one block away from the library. This particular CCCC also is popular among the children and young people in the municipality. They tend to gather at the venue in the afternoon to visit and socialize rather than use the technologies and search for information.

The sustainability of the CCCC depends on the services it provides, ranging from equipment rentals to selling bookstore supplies. The training available is developed mainly through the Program of Family Assignations, which provides scholarships for young people who have little or no funds. Many of these people asked to be trained to use Office Suite, and, according to the CCCC operator, most of the users, once again, are children and young people.

CASE 2: THE RIECKEN LIBRARY OF THE YUSCARÁN MUNICIPALITY

The researchers visited the Riecken Library of the Yuscarán Municipality, which has five computers with Internet access, a reading area reserved for children, and a reading area for adults. One of the library's most important and popular practices is the requirement that before children are permitted to use the computers, they must read a specific number of pages from some storybook.

The library offers a variety of training courses, and features self-esteem workshops for women to discuss such subjects as domestic violence, leadership, and even origami. Other training is

offered to introduce basic courses on MS Word, Excel, Power Point, and Internet use. While the focus of these courses is targeted towards adults, young people, and elderly people, the library has plans to offer training to children.

CASE 3: THE CYBERCAFÉ AT VALLE DE ANGELES

One of the cybercafés visited was located at Valle de Angeles. The venue does not offer any form of user training or capacity building. A person who holds a bachelors degree in informatics operates the venue and said that most of the users are children and young people between the ages of 14 and 23, who use the services for homework, e-mail, and communication.

SUCCESS FACTORS AND RECOMMENDATIONS

In Honduras, poverty touches every aspect of life, but is especially devastating among the underserved communities and groups. This situation is no less true with specific regard to access to information, communication, and ICTs, and the policies that could support access. Even though the government does not provide that support, various administrations have established a few tentative initiatives designed to provide equitable access, regardless of geographical location, gender, age, education level, or social conditions. However, government policies continue to emphasize a focus on regulating the access to public information and not necessarily on facilitating public access to information.

The government does not provide the necessary economic resources to install an adequate and appropriately equipped technology-based infrastructure. Without an adequate financial allocation, appropriate initiatives most likely will

not succeed in many localities, and especially in the regions where the government-supported libraries still do not exist.

The absence of technology training and capacity building in the school curricula clearly hinders intellectual development. When school children have been able to access ICTs, it has occurred through government entities, such as the COHCIT, which has installed computers in a significant number of schools. Regardless of the names given to initiatives, the effect has been the same when ICTs are actually provided to the nation's students. The result has also been especially valuable to the adult population when the computers are also made available to the non-student members of the community after class hours.

Most of the adult population is still faced with access limitations because so many people lack the capacity to use the technologies, even when they are made available. The problems are compounded by the many adults who perceive that technologies only serve as entertainment and are a waste of time and resources.

The results of the interviews and focus-group discussions indicate that the appropriation of technological advancements at many levels is slow in Honduras and may remain so well into the future. Although there are instances in which technologies and ICTs have been applied in commerce and education, they most often have been used for little more than a means of communication.

Success Factors

The support of the government and communities is vital to establishing adequate access to public information through ICTs. That support must be delivered at every level of political, social, economic, educational, cultural, and promotional involvement. A key requirement is for the population to believe that that involvement is valuable to their daily life and is sustainable. If the venues lack public and political acceptance and economic

Table 1. A Comparison of Venue Characteristics

State Libraries	Riecken Libraries	Knowledge and Communications Community Centers (CCCC)	Cybercafés
Created to satisfy a community's information needs and drive community development.	Designed to encourage public participation and development processes.	Created to promote the use of information and ICTs in ordinary tasks. The methodology had entrepreneurship as a goal.	Created to meet the need for access to ICTs and the Internet.
Most users are children and young people.	Most users are children and young people.	Most users are children and young people.	Most users are children and young people.
The libraries are part of the municipalities, which provide the guidelines based on rules established by the network of libraries, adapted to the needs of each library.	The libraries belong to the community and a Board of Directors. The rules and regulations are established by the board members who represent the community. They are based on the rules established by the Riecken Foundation and adapted to the needs of the communities and libraries.	The CCCCs belong to the Honduran Council on Science and Technology. The guidelines come from the Council but are mediated by the CCCC operator and the needs of the community, depending on where it is located.	Cybercafés are private businesses and operate for profit. The rules and guidelines are established by the owner.
Of the 122 state libraries, 52 have computers, but only 18 have Internet access.	Of the 52 Riecken libraries, 47 have Internet access.	All 126 have computers.	All cybercafés have Internet access.
The libraries are located in all 18 departments of Honduras.	The Riecken libraries are located in 14 departments of Honduras, but due to a lack of resources they do not exist in all of the 18 national departments.	The CCCCs are located in the 122 poorest municipalities of Honduras. They are in 16 departments. In total, Honduras has 298 municipalities and 18 departments.	No data available.
The programs mainly target the promotion of reading in all populations, although mainly in children. There are activities developed to bring adults closer to their children. The communities also offer training in manual skills to meet the needs mostly of women and the heads of households.	Develops diverse programs targeted at all populations, not only carried out by the Foundation, but many born from community needs. There are courses on crafts and other interests.	The CCCCs mainly offer training in computer use. There is no general program for all the CCCCs.	There were no programs or training found, although the operator is in charge of providing support for processes not categorized as training but which generate learning processes in users.
The generation of relevant content happens through the community information system, which is adapted to the information needs of the communities.	The generation of locally relevant content is promoted based on community interest through debates, papers, stories, legends, etc.	The generation of local content is through the creation of websites of the communities and, in some cases, of micro-enterprises.	There was no locally relevant content generation identified.
They are mostly located in the urban regions.	51 libraries are located in the rural areas and one is in a marginal urban area.	They are mostly located in the rural regions.	They are mostly located in the urban regions.
The librarians are trained, because Honduras does not offer a degree in Bibliotecology or Information Sciences. The Universidad Pedagógica has an agreement with the Network of State Libraries and offers a technical degree in Bibliotecology.		The CCCC operators are trained.	The operators of the cybercafés reviewed have some knowledge of informatics.
Information use, mainly with educational purposes.			
Adults often have a fear of using technologies.			
Social appropriation is mainly visible in the communication processes and educational goals of users.			

resources, they will not be successful. The most important single factor is for people to consider the venues to be necessary and to be able to identify with them.

Recommendations

The following recommendations emerged from this study:

- Collaborative networks to join the venues are needed in order to generate broader and more effective information processes. This type of network calls for coordination among the entities that are important for accessing information. As an example, the health centers could provide current health care information to the local venues, municipality, and the specialized information centers located in the communities.
- A participatory process is an urgent need, where people of all ages collaborate to define the needs of their community and prioritize them.
- More and better-equipped venues are needed, especially in underserved areas. The venues need to contain more locally relevant content.
- Capacity-building programs are needed to educate the public, especially among the older people, economically disadvantaged people, and underserved communities to teach them the advantages of access to information and ICTs.
- The municipalities and local governments must play a strong fundamental role in the integration and definition of venues.
- A collaborative network between the government libraries and the CCCCs would make better use of the available resources, and make the venues more attractive and valuable to the user base.

- Better training and information management processes are needed, along with diversified services based on the sustainability of the cybercafés. In this sense, cybercafés already fulfill a social role that is often not visible. That role has evolved, even though it is not a reason why the cybercafés were created. Because cybercafés are one of the venues most often visited, they could have a strong impact on capacity building and community involvement.
- Web 2.0 tools would have great value in creating locally relevant content.

CONCLUSION

This study generated important expectations among the people in Honduras who participated. Based on the results, additional work is needed to better define the nation's needs and to provide a basis for resolving the many issues that exist. Consequently, subsequent detailed studies are highly recommended.

The socio-economic conditions in Honduras are the greatest limiting factor in accessing public venues. People in the lower-income classes can rarely afford user fees and often cannot afford to travel to a venue. The need to maintain their daily subsistence is of the utmost importance, even if a venue is nearby. Most cybercafé users, by comparison, are in the middle class and have a certain amount of disposable income that permits them greater access to venues.

Age is a factor in accessing information and ICTs, and persons under 35 years of age form the vast majority of those who use the venues. Among the users interviewed, the majority used the venue services more for communication than for information searches.

Education levels are equally important among users, and students form a high percentage of the users. Searches for information are a high priority among younger people who use the venues

for their schoolwork and also to learn about job opportunities.

Although gender is a long-standing cultural inequity nationwide, the librarians and venue operators stated that they see little overall gender imbalance among their users. However, the people who use the libraries and telecenters tend more often to be women, while the cybercafés have a slightly higher percentage of male users. There were no conclusive data to explain this imbalance.

Both urban and rural venues were studied, but the initiatives that the research team observed appeared somewhat better developed in rural areas. The perception was that the initiatives were a greater need in rural areas where there were so few existing venues. The people in rural areas do not yet have as many ways to access information and ICTs as do the urban residents. There are, however, more overall sources of information in urban areas, such as documentation centers, university libraries, and cybercafés.

Because of the significance of migration in Honduras, this variable was added to the scope of the study. There are no special programs or initiatives that target the needs of migrants, but there is information available on foreign job opportunities, as well as information guides on the topic of migration.

Accessing information in Honduras for this study was difficult. The absence of valid and trustworthy data and reference material on the topic led to a strong need for frequent visits to Honduras to contact key sources.

This research is relevant because of the need to learn the information processes, the constraints, and the inequities in Honduras and to assess the public's access to information venues and ICTs.

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Chapter 18

Public Access ICT in Peru

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EXECUTIVE SUMMARY

Peru is located in western South America where it is bordered on the north by Ecuador and Colombia, on the east by Brazil, on the southeast by Bolivia, on the south by Chile, and on the west by the Pacific Ocean. With a land area of 1,285,220 sq km and an ethnically diverse population estimated to be more than 28 million, it is the fourth most populous country in South America. The diverse geography includes a central mountain range, dense rainforest, and a narrow coastal plain.

Peru is a presidential representative democratic republic with a multi-party system. The country is divided into 25 regions and the province of Lima. The regions are divided into 195 provinces,

and include the province of Lima. The provinces are subdivided into 1,833 districts. Each of these various political divisions has an elected government that serves for a four-year term. Voting is compulsory for all citizens aged 18 to 70. The president is elected by popular vote for five years and may not serve consecutive terms. The unicameral congress seats 120 members who also are elected by direct popular vote for five-year terms. General elections were held in 2006, and Alan García from the Peruvian Aprista Party was elected president with 52.6% of the valid votes.

Since the 1990s, Peru has followed neo-liberal and privatization policies in a political direction moves across the rest of the South American continent. It means that the Peruvian government, in the broadest terms, abandoned planning and concentrated on regulating private investment

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in providing services. The government now has more money to invest, and is using much of it for infrastructure development under the view that better roads, sanitation, school buildings, and telecommunication installations would help the public improve their daily lives, but little has been accomplished with regard to capacity building.

Peru was selected to participate in this study, which was designed to both assess the ability of the public to access information and communication venues, and also to review the role of information and communication technologies (ICTs) across the overall economic, political, and regulatory framework. The study assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes. The study placed an emphasis on the information needs of underserved and remote communities and groups.

The results of the research served to identify the principal venues used by the population to access information and communication, and characterize why, how, and by whom the venues are used. The study results were analyzed to determine how access is affected by inequity variables such as socio-economic status, education level, gender, location, and cultural issues. Through this investigation, the research team identified opportunities to strengthen institutions that offer public access to information and communication, inform policy and decision-makers, examine funding allocations, and review specific topics to consider in implementing policies and programs.

The research was completed in two phases; the first phase being exploratory and involving an extensive bibliographic review and initial fieldwork to identify information needs and the characteristics of public access to information and communication venues in Peru. The second phase involved a more extensive range of fieldwork that included interviews and surveys to characterize each public venue selected.

Findings

Based on the data and information gathered in the course of this study, the researchers were able to note the following points:

- There is little locally relevant content in any of the venues to meet the needs of the underserved population, which is characterized by low educational levels, high rates of illiteracy, and large numbers of people who do not speak, read, or write the Spanish language.
- Public access to the information and communication venues is strongly affected in different ways by the location of the venues, the technological capacity of the potential users, and the accompanying environment, according to the type of venue reviewed. The most relevant variable for access is that the people living in rural areas commonly do not have access to any type of venue.
- The political and economic environment for most of the venues is generally neutral.
- ICTs, and especially the Internet, have become the preferred way to access information, especially among the young people. This preference is particularly true in the urban areas, although it also applies to a lesser degree in rural areas.
- Cybercafés, or cabinas as they are called, are the most widely used information access venues.
- Specific policies and actions related to capacity building and the development of appropriate content are urgently needed to meet the needs of the underserved communities and groups.
- The new and existing information should be reformatted, translated, organized, and disseminated in more appropriate ways.
- The most important success factors affecting capacity building are purpose-oriented

training, the key interests of the groups to be trained, and skilled trainers.

- Additional specific research on the whole range of topics described in this study are highly recommended as an important step in improving the capacity of the population, aiding collaboration among the venues, and developing the accessibility and usability of web-based information services.

COUNTRY OVERVIEW

Introduction

Peru is located in western South America where it is bordered on the north by Ecuador and Colombia, on the east by Brazil, on the southeast by Bolivia, on the south by Chile, and on the west by the Pacific Ocean. With a land area of 1,285,220 sq km and an ethnically diverse population estimated to be more than 28 million, it is the fourth most populous country in South America.

The Peruvian landscape varies from narrow and largely arid plains in the west along the Pacific shore to the Andes Mountain range that runs parallel to the coast. East of the Andes lies a wide expanse of flat terrain covered by the Amazon rainforest, which accounts for nearly 60% of Peru's total area. The Andes Mountains divide the country into three major geographic regions. The coastal region (Costa) to the west is a narrow plain and is largely arid except for valleys created by seasonal rivers. The highlands (Sierra) are the region of the Andes and include the Altiplano plateau, as well as high peaks. The third region is the jungle (Selva) in the east, which is a wide expanse of flat terrain covered by the Amazon rainforest.

Peru, unlike other equatorial countries, does not have an exclusively tropical climate, and the influence of the Andes and the Humboldt Current creates great climatic diversity within the country. The varied geography and climate produce an

extensive biodiversity – 21,462 species of plants and animals had been reported as of 2003, 5,855 of them endemic.

Peru is divided among 25 regions and the province of Lima. Each region is divided into provinces, and the provinces also are divided into districts. Each province and district has elected officials who serve four-year terms. Peru is a presidential representative democratic republic with a multi-party system. The president is elected to a five-year term and may not serve consecutive terms. The unicameral congress seats 120 members elected to five-year terms. Government officials gain office through direct popular elections, and voting is compulsory for all citizens aged 18 to 70.

The economy has been moderately stable in recent years, although Peru felt the effects of the worldwide economic downturn in 2007-2008. The economy relies heavily on the income from the mining industry and, to a lesser degree, on agricultural exports. The imbalances in these sources of revenue and their effect on economic growth have created sharp differences among the geographic regions.

Peru is a multiethnic nation formed by the combination of different groups over its history. Amerindians inhabited the Peruvian territory before the Spanish conquest, and Spaniards and Africans arrived in large numbers during the colonial period, mixing readily with each other and with indigenous peoples. Following independence, there has been a small European immigration, and the Chinese immigration in the 1850's had a major influence on the ethnic mix.

Spanish is the official language and is spoken by 80.3% of the population. Several indigenous languages also are spoken, with 16.5% of the population speaking Quechua. Another 3% speak Aymara and Amazonian languages. Although 85% of the population is Catholic, several other religions are represented, including Protestants, Adventists, Mormons, Jehovah's Witnesses, and Israelites of the New Universal Pact.

The literacy rate is estimated to be 94.8% in urban areas and 76.1% in rural areas. Primary and secondary education is compulsory and free in the public schools. However, the quality of the public school education is low, and Peruvian students ranked last in the reading comprehension results of the PISA ratings of 2002.

Gender is a significant culturally based inequity in Peru. For example, women earn about 40% less income than men, and women have lower literacy rates (16%) than men (10%). The inequity extends to the access to information and communication technologies (ICTs) where 32.6% of the men access the Internet, but only 25.4% of women do so. Language, educational attainment, and venue location are especially relevant in accessing information and ICTs in Peru.

This study indicates that Peru could derive great value given more widespread access to information and ICTs. It was selected to participate in this study because of the value that access can bring to the country. The study was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. It assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes. The study placed an emphasis on the information needs of underserved and remote communities and groups.

METHODOLOGY

Katia Sotomayor, who has a background in anthropology, and Juan Bossio, who has a background in information systems, conducted the research for this study. Both of these researchers have several years of experience, including research on ICTs for development issues. Several assistants, each of whom has a related university degree, aided the research and applied surveys in public libraries, special libraries, and *cabinas*.

The research process started with an exhaustive literature review, including academic documents about ICTs, inequities in venues, statistical information, and reports about specific projects related to each venue. The researchers identified the information sources that people use, and then selected those that were open to the public and widely distributed.

Public libraries and cybercafés (called “*cabinas públicas*”) were selected because they are distributed nationwide; telecenters were considered because their development objectives are oriented towards underserved communities. Special libraries were included because of their importance in providing information for human development, but university libraries were excluded because not all of them are open to the public. Rural and “communitarian” libraries also were excluded because they only serve specific user groups. Rural libraries are located only in Cajamarca, while the “communitarian” libraries serve poor neighborhoods in Lima.

Specialists were interviewed to provide an overall view of each venue selected, and the team visited 13 rural and 18 urban venues (13 in the highlands, 11 on the coast, and 7 in the rainforest). The team surveyed and focused on public libraries, special libraries, cybercafés, and telecenters. The limitations the team faced were around insufficient statistical and financial information available related to special libraries and cybercafés.

Inequity Variables

Socio-economic status is a key inequity, even when ICT access fees are low, but it affects the ability of many people who cannot afford to dedicate time to search for information. Furthermore, older people and people with low educational levels commonly lack the technological capacity to use the venues, and often cannot apply the information they do have appropriately.

Gender is an inequity that restricts access to education, higher income sources, employment, and access to new technologies, although some progress is said to be slowly emerging. Nevertheless, older and rural women are still far from reaching any degree of equity with men, and this inequity is not expected to change in the foreseeable future.

Location may be the most important limiting variable to consider when analyzing access to information and digital services. Information services and ICTs, such as those available in special libraries, are heavily concentrated in Lima and very few other cities. Despite the rapid penetration of mobile telephony, there is still a huge gap between the availability of venues and other communication methods in Lima and the rest of the country.

People who do not speak Spanish, or who have low incomes, little formal education, and live in rural areas face extreme limitations with regards to accessing information. There is little information available in any of the native languages and information services are not prepared to serve these groups. This language landscape is also not expected to change in the foreseeable future.

Data Collection

To get information directly from the venues, the researchers visited 13 rural and 18 urban sites; 13 were in the highlands, 11 were on the coast, and 7 were in the rainforest. The researchers then applied two different surveys, one for the operators and one for the users, at each type of venue. Fifteen

specialists were interviewed to get a variety of opinions about each venue selected.

The sample of cybercafés, public libraries, and special libraries was distributed across eight regions - the Southern Coast (Tacna), Central Coast (Lima), Northern Coast (Lambayeque), Southern Highlands (Arequipa), Central Highlands (Cusco), Northern Highlands (Cajamarca), High Jungle (San Martín), and Low Jungle (Iquitos). Location was not considered to be the most important variable for telecenters because most telecenters are in rural areas and are not distributed nationwide. The type of institution that supports each venue (CBO, ONG, or local government) was determined to be the key variable, along with the region where they were located.

The research team visited the venues to survey the public libraries, cybercafés, and special library users. The telecenter and special library operators responded to their surveys by e-mail, and the venue operators surveyed the telecenter users. Table 1 lists the distribution of the surveys.

To determine the number of special libraries and telecenters, the study team searched the Internet. To validate the findings, the team used e-mail to seek feedback about new venues. They considered the sample to be representative, and the results for cybercafés were consistent with the information developed by the National Institute of Statistics and Apoyo. The study team found little statistical information about special libraries and cybercafés and were unable to obtain financial information about nearly all of the venues.

Table 1.

	Public Libraries	Special Libraries	Cybercafés	Telecenters
Number of urban venues surveyed	14	27	14	2
Number of non-urban venues surveyed	7	-	7	15
Number of respondents in urban venues	102	93	97	11
Number of respondents in non-urban venues	36	-	42	48

OVERALL COUNTRY ASSESSMENT

Public Access to Information

Public access to appropriate, relevant, opportune, understandable, and usable information is limited throughout Peru. Marginalized groups must usually rely on social networks to access information, but the quality and amount of information available through that channel is inadequate. General public information services, such as libraries, are rarely integrated with social networks as information sources.

The Internet is increasingly being used to access information, at first as an extension of the richness of social networks by amplifying them and helping elements of them connect more easily. But the Internet also is helping people to access information outside of social networks, usually through common web pages, and, increasingly, through specialized and appropriate information systems or services.

The Internet is most commonly accessed through the *cabinas públicas* (the cybercafés). More than 60% of all Internet users gain access at the *cabinas*, and this percentage is significantly higher outside Lima, approaching nearly 100% in rural areas. Projects funded by the government are in place to install *cabinas* in 5,000 rural settlements, and, in addition, corresponding private sector investments aimed at installing *cabinas* have been noted.

Mobile telephony penetration has been increasing tremendously since 2006 and is expected to continue into the future. Mobile telephone access and use has surpassed fixed-line phones and the acceptance of the technology has been particularly rapid in rural areas and remote regions that never had IT services of any kind before. Increased Internet access and mobile phone coverage would help social networks circulate information more efficiently, but will not help much in the effort to acquire and disseminate new information that is especially applicable to many underserved

population groups. Many such groups of people need information on technical or productive issues directly applicable to their small businesses, health care, human rights, commercial and employment opportunities, transactions involving government forms and processes, weather, and agriculture. They need appropriate, accurate, and locally relevant information, which is rarely available to them now through any existing venue.

Public information services, especially public libraries, should be one of the main sources for such fundamental information, but Peru not only does not have a solid tradition of public libraries, the existing libraries are being used less frequently. Municipal libraries, the most common form of public library, have outdated and limited collections, and where they had long relied on students as their greatest user base, those students are quickly gravitating to the *cabinas*. Driven by decreasing budgets and decreasing user traffic, many municipal libraries have been forced to close in the past few years.

Most special libraries are open to the public, and they serve an important role because most of the time they are the only available way to access specialized information on certain issues or subjects. Perhaps because of the phenomenon of the *cabinas*, Peru has fewer telecenters than other similar countries. Most telecenters in Peru are located to serve a public that does not have personal or private Internet connections.

Inequity, Environment, Access, and Capacity

The Peruvian economy has shown signs of improving. For example, there was an 8% increase in the GDP and 5.4% in the GNP in 2006 (Campodónico, 2007), but the changes are happening in a highly unequal structure. The GINI coefficient consistently decreased from 1961 to 1996, dropping from 0.58 to 0.38 (Escobal, Saavedra, and Torero, 1999), but has been increasing since then and reached 0.58 in 2006. There is an important

inequity based on regional terms, most notably in Lima, Piura, and Ica, all of which are coastal cities where there is greater employment and far less poverty than in past years. A similar inequity is seen in various places elsewhere along the coastal region, and also in some cities in the highlands, but in rural areas, or in any of the small cities or towns in the highlands.

According to INEI (2007), 44.5% of the population lived in poverty in 2006, and the poverty was unequally distributed between the capital (24.2% were under the poverty line in 2006) and the rest of the country (52.8%). A similar inequality was recorded between the urban (31.2%) and rural areas (69.3%), and between the coastal region (28.7%), the highlands (63.4%) and the rainforest (56.6%). While some people point to the figures that show poverty has been reduced in general, the decreases have occurred primarily in Lima, along the coast, and in urban areas, while there is little noticeable change in the rural areas and in the highlands or rainforest.

The most extreme poverty is concentrated in certain regions. Huancavelica is the poorest region with about 75% of the population listed as being extremely poor, and three other regions (Huanuco, Puno, and Ayacucho) are well over 40%. Poverty also is worst amongst women and young people. Households headed by females are more likely to be poor, and more than 40% of the population under the age of 14 is extremely poor.

There was no statistical information available to the researchers to indicate how race might be related to income, education level, basic-needs satisfaction, or access to ICTs. Racism has long been hidden, but it is being revealed more frequently now, and its links with inequality and poverty are beginning to be described (Ardito, 2007, and Bruce, 2007).

Regional inequities are especially important with regard to ICT access. According to a national ENAHO household survey taken in September 2007 (INEI 2007b), 30.58% of the population five years of age and older had accessed the Internet, but that number increased to 48.73% in

Lima and 36.83% in the other urban areas. The number dropped to only 8.41% in rural areas. Access to ICTs and other communication services in households is particularly unequal. For example, 59% of the households in Lima have telephone landline service, while only 29% of other urban households have the service. The number drops to less than 1% among rural area households. The Internet connections stand at 16% in Lima, 5% in the other urban areas, and 0.07% in rural households.

Mobile telephone access is beginning to bridge the divide, and has reached 66% in Lima, 56% in the other urban areas, and 15% in rural households. Interestingly, the gross increment in one year was 7% in Lima, 22% in the other urban areas, and 10% in rural areas. In terms of capacity, persons with less education (both in years completed and in quality) generally have less capacity to use ICTs, so it is not surprising that 76% of the people with higher education use the Internet while only 11% of the people with no more than a primary education do so.

When Internet access is viewed in terms of gender, there is an observable difference between men (34.52% of Internet users) and women (26.52%), and when considering cultural issues, there is a noticeable gap between people who speak Spanish as a primary language (36.16% are Internet users) and those who speak a native language (8.6%) (INEI, 2007c). Similar differentiations are seen among groups sorted by age. Fully half of the people between 12 and 24 years old and nearly 30% of those between 25 and 40 years old have used the Internet, but only 3.81% of the people over 60 have done so (INEI 2007b).

It is expected that international commercial agreements, especially those conducted with the United States, will lower the price of computers and the related technologies. The decrease will greatly aid *cabinas* that serve low-income users, and will also affect *cabinas* in upper- and medium-income neighborhoods, where more people will have access at home.

Access to ICTs is far from being a “solved” problem for everyone in Peru, but there is affordable access to appropriate ICTs for large numbers of people through *cabinas*, which remain the most widely used points to access the Internet. *Cabinas* are proportionally less accessible in rural areas, but a few more are opened each month, and there are unsubstantiated claims that indicate a large public project is going to install a great many more of them. Not everyone who can access the Internet actually does, and the reason is seen to be more a function of technological capacity and content issues rather than accessibility issues.

Human capacity is a key issue for understanding and processing information with regards to using ICTs. Overall, illiteracy across the general population is high at 11.5%, but is even higher among women (16.5%), poor people (18%), rural inhabitants, and those who do not speak or read Spanish. Furthermore, there is an extensive, but hardly measurable, functional illiteracy. Many people learn how to read while they are in school, but rarely read, or have a need to read, anything after they leave school and usually lose the capacity to read. Public libraries and a few telecenters are teaching reading comprehension to young students during vacations, but the researchers were not able to identify any corresponding programs for adults.

Telecenters are training users to use computers and the Internet. Additionally, a few libraries that have Internet connectivity (usually the ones that have the greater resources) also are training users. Those libraries are typically the facilities that have professional librarians who know that training courses should consider age and gender when they tailor the courses for a particular group. In the case of *cabinas*, any willingness to help the users rests entirely on the choices of the operators. There are no formal courses offered in the vast majority of the *cabinas*, and few *cabinas* have any adequately trained rural people to teach the users, even when some projects made funding available for that purpose.

Locally relevant content is scarce and hard to access in any venue. Special libraries typically offer some content with relevance for human development, but it is not necessarily appropriate for underserved communities and groups. Institutions that support these libraries are beginning to make the information they produced available through their web pages. The content at public libraries is outdated and does not solve issues that occur in the daily lives of the users. *Cabinas* simply do not develop content, but a few telecenters provide access to relevant content produced by the projects that promoted them.

Information Needs of Underserved Communities

Information needs depend on practical needs and are varied among different groups. The differences vary according to such things as gender, age, cultural factors, occupation, and a host of others; information needs are dynamic (BOSSIO 2002b). There have been a few studies on the information needs of certain underserved groups (Sotomayor and Bossio, 2006), but it is impractical to generalize the information needs of entire underserved population segments. For example, farmers need information on climate changes, technologies, and market issues, but their needs are specific to particular geographic areas, climates, and cultural or education-level differences, even among those same farmers. Small entrepreneurs need specific information to suit their production and markets, and women need information on human rights, health, and childcare. The list is complex and subject to rapid change.

People in Peru, as elsewhere, access information through different channels, and information commonly is accessed using social networks, especially among people with less education, rural inhabitants, women, and people who do not speak Spanish (BOSSIO 2002). However, some information is accessed through formal channels or

services, such as government or non-government (NGO) information services through the Internet, information desks, or at libraries.

In Peru, governmental information services, or information desks at government offices, are often inadequate, but they are seen to be improving. Public or special libraries funded by the government or the private sector are seldom used by most of the population (Castro 2002), usually because of a lack of locally relevant content.

Economic, Policy, and Regulatory Environment

The Peruvian economy has grown primarily as the result of the sale of its gold deposits and other metals and minerals. The export of agricultural products produces less cash income, but is far more important to the economy when considering the employment opportunities for the population. While mines do not bring development to places where they operate (the highlands), agricultural industries strongly contribute to development along the coastal region. Nevertheless, high levels of poverty continue among the marginalized groups. The resulting economic inequality could foster political instability. Historically, the government has neglected to provide adequate services to most of the population, especially among poor people, rural inhabitants, highland and rainforest populations, and people who do not speak Spanish.

Law 29181, published in January 2008, establishes that private and governmental institutions should have accredited librarians at their libraries. If the authorities chose to enforce this law, many professionals would not be able to work as librarians, and many institutions would be driven to close their libraries because they cannot afford to pay a formally trained librarian.

Since 2001, several initiatives from government and civil institutions have recognized the value of ICTs and have developed plans to use them. In 2005, CODESI (the government's commission tasked to develop an information-based

society), staffed by delegates from different government offices and lead by the prime minister's office, published a national digital agenda (CODESI, 2005). In reality, the agenda is not actually a guiding public policy, and CODESI does not yet include enough stakeholders from the public sector (Saravia and Iriarte, 2007).

An initiative called FITEL (Fondo de Inversión para Telecomunicaciones) has been the most visible program for increasing access to ICTs. At first, the FITEL projects only installed public telephones, but then advanced to include limited Internet connectivity, and, finally, the installation of PIAPs. By the end of 2007, FITEL initiated a project to go beyond installing the phones, connectivity, and PIAPs, and expanded the project to include wireless home and mobile phone connections. More recently, FITEL has added capacity building and content development to their projects, and all of its projects continue to be technology oriented.

But to be fully successful, the spread of ICT access cannot rely solely on subsidized programs if such services are ever going to be available to the entire population. The amazingly rapid expansion experienced in mobile telephony access and use across the country in the past two years was encouraged largely by policies from the government. Nevertheless, better policies are required if widespread access to ICTs is ever going to extend beyond Lima to the rural areas. Wireless technologies offer outstanding possibilities but face regulatory limitations. And yet, local service ICT providers have developed good working relationships and are now better able to deliver localized and appropriate service solutions,¹ even though it is still difficult to become an ICT service provider at the regional and local levels.

There are various government offices that initiate and sponsor projects related to ICTs, and most of them install infrastructure, but there is no coordination among the sponsors or their projects. For example, one large educational program called "Huascarán" offers computers with Internet

connection in schools (especially in rural areas and urban peripheries), but the infrastructure is established to serve only the students and teachers.

A local government enacted Law 27972 to say that one of their functions is to "...organize and sustain cultural centers, libraries, theaters, and art workshops in provinces, districts, and settlements," but the law also states that if they cannot provide this service, they would ask other governmental institutions to provide it.² Some local governments have refused to permit antennas to be installed because the governing officials think the antennas may cause illness or because they want to receive bribes or quasi-legal payments from telecommunication companies. Most local government officers and authorities, especially in rural areas, do not know how to use computers and do not have any idea what value the Internet has to offer.

While the investment needed to deploy ICT infrastructure in rural or poorer areas is expected, the general trend is to continue to liberalize the overall approach to telecommunications. This liberalization is not necessarily good or bad in and of itself, and its impact on society will depend on a great many different factors. Since 2006, the two largest telecommunication companies in Peru realize that rural areas are good places to invest and to gain more mobile phone subscribers. In July 2008, both companies expanded their service coverage into Quechua and Aymara.

The World Summit on the Information Society (WSIS) provided the motivation to create CODESI, and the principles to be considered in national plans in the Latin American region were set in 2003. Since then, Latin American governments have set common goals that form part of the eLAC 2007 movement. The eLAC 2007 became part of an overall political agenda for Latin America and the Caribbean region, and was inspired by and patterned after eEurope to recognize the importance of ICTs to economic and social development. As the eLAC 2007 was established, its five key areas focus on access and

digital inclusion, development of capacities and knowledge, transparency and public efficiency, political instruments, and environment.

Collaborative Practices across Venues

There is a rich heritage of association and networking among the government and non-government special libraries. They are linked by the common themes of health care, HIV/AIDS awareness, agriculture, forestry, disaster mitigation and emergencies, appropriate technological appropriation, and financial interests and the economy. Library networks have long used ICTs as a tool, and health libraries, for example, have spent more than twenty years sharing common bibliographic databases in Isis and MicroIsis software. On the governmental side, there is a national public library system that links the government-supported libraries, but most of those libraries do not maintain links to other libraries.

Cabinas are not integrated or linked in any significant way, although there are two or three very minor associations. The most active of those associations is called ASPESI and defines its associates as "cyber centers" rather than cabinas because they claim to provide more services than simply offering Internet connectivity.

There have been four national telecenter meetings, and the last one was held in March 2008 (<http://infoandina.org/telecentros>). The meetings were convened by a group of organizations and professionals interested in promoting telecenters and making them more useful. The group meets and organizes events with some regularity, but they have failed in their attempts to formalize this networking. There are strong links and some formal networks among telecenters created or promoted by the same project, such as the SIA Huaral and SIRA Arequipa telecenters, but they do not extend beyond the local or regional level.

Collaboration among the various government projects and initiatives has not been very common,

but it seems to be increasing, and most realize that telecenters and cybercafés would have a lot to gain from developing functional networks. Telecenters and cybercafés may have different goals, but they share common problems and could share experiences. In a similar manner, public libraries would benefit by networking with local telecenters and cabinas. The practical experience of networking among special libraries is well known among librarians, but the concept may not be equally well known among other professionals.

Buzz Factor

Most of the public considers a well-designed and well-maintained infrastructure to be a good thing, and because the public represents the power of the nation's ballot boxes, the result may go a long way toward explaining why the government prioritizes its continuing investment in infrastructure. It might also be said that because engineers, as opposed to sociologists or economists, commonly manage most of the operational offices at all levels of government, that this, too, might further explain the emphasis on infrastructure investments.

Legitimate Use of Information and Resources

Public access venues that were installed with public funds or international donations, such as telecenters, local government-sponsored computer laboratories, or public libraries, usually do not permit users to access games and chat sites. While the reasons for such restrictions are generally understood, there are those who object to the restrictions on the basis that they infringe on civil rights, while others, more interestingly, claim any such use will help people become more familiar with new technologies. Regardless of the viewpoint, not many of the PIAPs actually impose any such restrictions. Chat sites and email are the most commonly used services in cybercafés, and, according to law, the cybercafés should provide

“safe computers” (that is, computers with filters to prevent minors from accessing pornographic sites).

Shifting Media Landscape

ICT services have rapidly expanded, gained many new subscribers, and attained widespread regional coverage, especially with regard to mobile telephones that are overcoming the lack of landline telephone service (Gallardo, López, and González, 2007). Gallardo, et al., present several indicators of this important shift and noted that the number of cell phones per one hundred inhabitants increased from 14.7 at the end of 2004 to 31.9 by the end of 2006. The districts covered by cell phone service more than doubled in 2006 from 434 to 974, and of the total of 1,828, there has been a significant shift in the percentage of households that have access to telephone service (including both landline and mobile coverage) from 24.4 in 2001 to 41.9 in 2006. This increase has been proportionally higher in cities other than Lima (from 24.4 in 2001 to 50.6 in 2006) and in rural areas (from 1.0 to 4.1³). The expansion had been mostly in cell phone ownership by members of households that previously did not have a landline telephone. According to the authors, the gap between the expected telephone penetration and real phone penetration, considering the GNP, has closed quite rapidly, and Peru has as many telephones per one hundred inhabitants as other countries that have a far better economic situation.

According to Barrantes (2007), statistical data on ICT density underestimate the importance of mobile telephones because more than one person usually uses such phones, and those persons may not necessarily be members of the same household. The results of representative surveys in Lima and two other cities focused on low-income households and showed that 60% of those households are mobile telephone users, but that only 60% of the users actually own a mobile unit, the remaining 40% borrow or rent one to make calls.

Mobile telephones are used for communication and are not yet being used to access information, but there are private and public services currently in development to provide the capability. For example, in July 2008, the agriculture department initiated a service to deliver market information through mobile telephones on agricultural products, including the market prices in the main market in Lima.

Blog development and access have grown rapidly in the last two years. This usage, along with amateur video postings, had gained wide public acceptance in recent months. However, no definitive documentation or data exist to estimate the extent to which Web 2.0 tools are being used in public access venues.

VENUE ASSESSMENT

All of the venues studied during this research have been instrumental to some degree in informing their respective community members about the issues that are most pressing to them. Whether it is a municipal library, a special library, a telecenter, or a cybercafé, each of these venues serves an important role in empowering the community.

Municipal Libraries

Municipal libraries are public libraries supported by the local governments at the provincial and municipal levels. These public libraries, in theory, are designed to serve all segments of the population, but in reality, most are oriented towards students because school libraries are almost nonexistent. However, students, who had been going to the libraries, are now turning to the *cabinas* to solve their information needs.

The law states that each local government is obligated to implement a library in its jurisdiction, but only 40% of those local administrations actually have a library, and, consequently, public libraries are simply not accessible to much of the

population. There are 729 public libraries nationwide, and 390 of them are in urban areas. (Tejada does not yet have a public library, but is scheduled to receive one soon.) Most local governments do not place much importance on libraries and, despite the law, many local governments that are supposed to have a library directly ignore them (Castro 2002). Where public libraries are available, the cost to access the services is low and is affordable for nearly everyone. In general, both the quantity and quality of the collections and the services are quite low, nearly all public libraries lack ICT access, and ICTs are available only in 10% of the total.

The staff at the libraries is inadequately trained because of the budgetary constraints, and that severely affects their motivation and capacity to work. This situation also explains why those libraries do not develop adequate services in general, or make a stronger effort to attract more users from the community. The lower budgets and fewer visitors highlight the lack of public and political support, and, as a result, many municipal libraries have closed in recent years.

The content in almost all of the public libraries is oriented to serve students. With such a limited focus on both the services and content, the broad public perception that libraries exist only to serve students is strongly reinforced. If the libraries were to have updated content, students would go frequently, especially if there were no other available information sources in the community, such as a cybercafé, but a continuing lack of updated content is far more common.

Municipal governments fund public libraries, but the budgets are adequate at best, only covering infrastructure maintenance and salaries. The more recent improvements in the condition of the national economy are not being reflected in the investments in libraries, and continued economic constraints in local government budgets in some cases have driven reductions in library budgets and services. Library budgets have decreased in recent years because the number of users has

also decreased. This tendency will continue unless there are major changes in the government paradigm with regards to public libraries. The current regulatory and obligatory practices make it nearly impossible for libraries to offer digital technologies and other services that the public needs if the libraries must charge greater fees to provide any improvement in their services.

CASE EXAMPLE: THE MUNICIPAL LIBRARY OF JESUS MARÍA

Jesús María is one of the 42 districts in the capital city of Lima, and the Municipal Library of Jesús María was created in 1970. In 2003, the library underwent reorganization because so few people were using it, and although they changed the furniture and opened an Internet room, it did very little to attract more users. In 2005, they hired a professional librarian and added some new services, and the user traffic began to increase.

The library provided a reference service, reading-room loans, and Internet access, but perhaps the most important improvement came when they added cultural extension programs. They introduced the Mundobus – a mobile library with books, video and audio equipment and games – which visited the schools in the district and remained at each school for up to three months. The project started a reading club for children and a “biblioteca viajera” (a collection of 120 books that the library loans to a school for a month).

The library has established a computer-training program and provides free training courses designed especially for people who are older than 65 years. This feature has been a resounding success, and the program has a full schedule registered for the courses for three months in advance.

The library has a basic collection of 12,000 items with information focused to satisfy the needs of young people who are studying to apply for university entrance. Despite the fact that

the library does not have a budget to buy books, it has updated its collection with gifts and public campaigns to get donations.

Special Libraries

Special libraries are defined as those libraries “... that depend on an association, official service, department, research center, scholarly society, professional association, museum, company, or any other institution, and whose collections are focused on a particular theme, for example: social science, natural science, history, etc.” (Garcia, 1988). Some special libraries offer services to a particular community and others are accessible to the public. Only those special libraries that were accessible to the public were included in this study.

There are approximately 106 special libraries in Peru. While all of them are in urban areas, 95 of them are located in Lima. Quite clearly, direct access to their services is beyond the reach of most of the population, but several are beginning to offer access through online services.

Special libraries do not openly or regularly receive any political or public support. They are sustained because of their ability to provide information as an objective of the institutions that support them. Because special libraries are not dependant on external support, they are extremely vulnerable to any budget constraints imposed by their parent institutions. Most commonly, when the parent institutions are driven to cut costs, the libraries are the first places to feel the effects.

Special libraries serve an important function by being a unique channel to access specialized information on certain specific issues or subjects. Most of the users of special libraries are professionals, businesspersons, and students, and the library collections and materials are appropriate to those user categories, but not necessarily to underserved communities. However, a few special libraries, because of the nature of their

parent institutions, try to address specific needs of underserved communities.

Special libraries have trained staff who are able to offer specialized information, but this service is commonly restricted to people with high educational levels because the information is only very rarely appropriate to the majority of the population in terms of language, format, or subject matter. Most of the content has great relevance in human development topics, but focuses mostly on research and educational purposes.

CASE EXAMPLE: THE INSTITUTO DE INVESTIGACIÓN DE LA AMAZONÍA PERUANA

The Instituto de Investigación de la Amazonía Peruana (IIAP) library is a government institution that specializes in serving a particular Amazonian area located 2.5 km from Iquitos, the capital of the Loreto Region in the Peruvian rainforest. The library was created in 1983 for the specific purpose of supporting research, teaching, and technical and scientific learning. The IIAP has since established an Information Center with areas for: 1) an Informatics Unit that supports the institute's staff, with tools to maximize the productivity and quality of their work, 2) a Geographic Information Unit to process data using Geographic Information Systems (GIS) to produce information about the Amazonian area, and 3) a Documentation and Information Unit (library) to provide scientific and technical information to optimize the development in the Amazon.

The library collection contains about 9,000 titles, and the collection is kept updated through donations and a publication exchange program. As part of the collection development, the staff is digitizing the IIAP's bibliographic production and making its full text available on their website.

About 300 users visit the library each month, and 80% of those visitors are students. The library services are offered without charge and include

reading-room loans, interlibrary loans, an online catalog, and Internet searches. The library has a special program that provides access to scientific information in rural areas and is called the Bibliomaloca Intinerante, which is a mobile "maloca" library. (A maloca is a typical house in the rainforest.) The maloca library offers a small collection of books, documents, videos, and games transported to rural areas and made available to a rural community for a month.

Cybercafés (Cabinas)

The Red Científica Peruana (RCP) first introduced cabinas in the mid-1990s. The purpose was to make technologies more readily available to the public, but small entrepreneurs trained by RCP installed and operated cabinas purely as profit-oriented commercial businesses by offering simple Internet connectivity. In the late 1990s, the phenomenon was enthusiastically accepted by the public and expanded quite rapidly. Cabinas quickly appeared in every large- and medium-sized city, and were extremely popular. At the present time, nearly every urban community has at least one cabina. The expansion into small towns and villages in rural areas is being accelerated as part of several governmental projects.

There are an estimated 32,000 cabinas in Peru, but only 1,000 of them are in rural areas. Cabinas have become the most widely used Internet access points in Peru, and are said to serve 75% of all Internet users in the country, according to INEI (2008). For people who do not have an Internet connection at home or who do not have a computer (which is most of the population), cabinas meet the public need.

Cabina users are mainly young people who go to the venues primarily for communication, information, and entertainment. Adults and older people use the cabinas, but to a far lesser extent. Most cabina owners do not consider this group as part of their targeted user base.

Cabinas provide Internet access, but offer little else. They do not offer any form of training or capacity building for people who do not already know how to use computers, and the venues do not develop any content. Where cabinas are available, people have integrated them into the daily routine, especially among the young people who search for entertainment and information related to education. Older people are a small minority among users because they lack the technological capacity to use the computers and most do not consider computers to be useful tools to solve their particular information and communication needs.

Cabinas enjoy a favorable environment in Peru, and they are recognized as a successful model for accessing the Internet. Government support for the cabinas is based on the concept that information and communication services should be provided by private parties and entrepreneurs. Under this concept, there are no significant regulatory or legal barriers governing the performance of the cabinas. The improving national economic condition continues to contribute to an environment that favors the development and expansion of the cabina phenomenon. Cabinas are seen by the government and by the private sector as a favorable way to provide services, employment, and commercial opportunities, and they generate income while improving information and communication access.

CASE EXAMPLE: THE ELECTRONIC GIC CYBER CENTRO

Electronic GIC is a company located in Bellavista, one of the six districts of the Callao Region near Lima. The company opened in November 1991 and operated its first cabina in Callao when there were only fifteen in all of Peru. The venue began with twenty computers and a dial-up Internet connection that made the service seven times more expensive than it is today. The venue provided other services, including typing, printing, photo-

copies, scanning, and fax services, and introduced conferences to explain what the Internet was and how it could be useful.

The main customers were young people, as they are today in most cabinas. The sudden proliferation of cabinas drove the price of the services downward, and each year the company income dropped. After five years, the operators altered their business model and decided to offer services that were more closely oriented to other customers.

The company evolved beyond the more traditional cabina model and has since become an e-office for their customers. Electronic GIC is organized to serve entrepreneurs with web-page design and maintenance, email accounts, web-page hosting, and a suite of office services designed around the Internet (fax services, typing, printing, scanning, photocopies, CD burning, information searches, e-tax declarations, training, and consulting services).

Electronic GIC added a mailing service that provides an email account. When requested by a customer, the office staff can access the customer's email and inform the customer by phone so the customer does not need direct access to a computer to be connected. The customer can also request staff to answer an email.

The venue offers training courses to teach users features of the Internet and the Microsoft Office® programs (Excel, Word, and Power Point), and the venue operators can also design personalized courses. They frequently offer conferences to keep their customers informed about new technologies that can be applied in their businesses (<http://www.electrogic.com/index.htm>).

Telecenters

Peru only has 72 telecenters, and only three of those are in urban areas. The rest are installed in rural or deprived areas where the population was not expected to have ready access to the Internet. Telecenters only serve their immediate localities or

special groups, and installations began as a strategy to provide access to those people who would have no other access to computers or the Internet. Telecenters and their technology are more trusted and better appropriated when they are owned by, or have the support of, local organizations. A few large government projects are under way to establish more venues, and some are planned for special groups in urban areas, such as visually impaired people and low-income workers.

Because there are so few telecenters, they do not serve large numbers of the population and serve far fewer users than any of the rest of the venues researched for this study. However, the collective importance of telecenters exceeds the service provided by each individual venue. Policy makers and the public have become well aware of the usefulness of the Internet among rural people and have become aware of the factors that affect the failure or success of the venues. That realization has contributed significantly toward shaping relevant policies and projects, such as the ones that featured the installation of the 5,000 PIAPs in rural areas, and which now include capacity building and content development.

Just a few telecenters offer their services free of charge, but most of them charge for services based on market prices, although some have arranged special prices or concessions for certain groups. The relatively higher connectivity charges in telecenters are a reflection of the high satellite-service costs. Most of telecenters face financial sustainability issues, and the problems are exacerbated if a cabina is established nearby.

Many telecenters closed when local entrepreneurs installed cybercafés in rural areas, such as the Cotahuasi AEDES's telecenter, or the ALTERNATIVA telecenter north of Lima. Other telecenters were driven to reorient their venues to focus their services towards their parent institutions or groups and away from the general public. That was the case with the majority of the Huaral telecenters. Some projects that promoted telecenters have

begun looking at ways to involve cabinas as a way to provide the services they originally wanted telecenters to provide.

Another problem faced by telecenters is their difficulty in retaining an external technical staff for any length of time. Training local people in rural areas often entices the trainee to migrate to localities where they can get better-paying jobs, as one telecenter promoter from Arequipa reported. The need to develop capacities in a sustainable manner has become urgent, making telecenter operators and staff train additional people as replacements when others leave.

In both social and economic terms, the role of the telecenter operator is valuable, and the operators also need training beyond technological issues to include trainer capacities, better business practices, and development issues. These areas are needed for developing the societal value of telecenters, which can then train less-educated people, older people, women, and similar groups not yet using telecenters, thus inviting them to use the services.

CASE EXAMPLE: THE AGRARIAN INFORMATION SYSTEM TELECENTERS IN HUARAL

The Huaral Valley is on the coast of Peru 90 km north of Lima, and the majority of the residents are farmers. Agriculture in the region depends entirely on irrigation, and the group that oversees irrigation had always been closely associated with the social organization in the Huaral Valley and other coastal valleys. At present, water resource management and the irrigation infrastructure is the responsibility of a small organization composed of farmers called the Irrigation Board and Irrigators' Commissions.

A project developed jointly by Centro Peruano de Estudios Sociales CEPES and the Irrigation Board installed 11 telecenters in rural communities

in 2004 and established a web-based information system on water management and cultivation monitoring <http://www.huaral.org>. The project has one connection to the Internet and a wireless network that links the telecenters and certain governmental offices. This technology supports a limited set of telecommunications services, despite some regulatory constraints.

The telecenters provide information about Huaral Valley production and the surrounding area, current market prices, agrarian law, local and international news relevant to the farmers, water availability, and similar information. The role of the local CBO has helped to shape the project, adapt it to the changing political environment, and press policy makers. These activities have been crucial to the project's success and sustainability. Because of that success, this project is now being replicated in other coastal valleys.

Comparative View of Important Venues

Cabinas are the most widely used and accepted information and communication access venues available in any urban setting, followed by municipal libraries and, finally, special libraries and telecenters. Most cabina, public library, and telecenter users are young people, while professional people more often use the special libraries. Regardless of the venue type, the fees charged for the services are affordable for most people.

ICT training is limited for the most part to the telecenters, although a few libraries and cabinas have begun to offer ICT training. Except for the special libraries, most venues lack adequately trained staff, which has limited the value of some of the services. Still, their users value the public libraries.

There is a general lack of content development in any of the venues, and very little locally relevant content is available. Some special libraries have developed services to allow access to the informa-

tion they retain, and a very few telecenters have begun to develop small amounts of local content.

There are indications that the cabina users are beginning to absorb the services into their daily routines, and there are similar indications among the telecenters in some of the outlying communities. Older people remain a significant minority among cabina and telecenter users and show little technological capacity. Consequently, the older population seldom considers computers and ICTs to be useful in solving their particular needs.

SUCCESS FACTORS AND RECOMMENDATIONS

Information needs are precise and time dependent, but, in general, the Peruvian population needs information that can directly be seen to improve the quality of the lives of individuals. There are a number of important examples:

- Information about employment opportunities is provided by the Ministry of Work, and also by certain NGOs, but that information needs to be delivered in more useable forms and given wider distribution.
- Information about small business opportunities is provided by different sources, but there is no practical network in place to deliver that information to the people who are most in need of it.
- There are a few information services that offer information on health and illness issues, and the public media provides some of that information, but the people still need accessible, understandable, opportune, and precise information on the subject.
- Very little of the important information about agricultural issues is distributed, such as market prices, sowing and harvesting concerns, irrigation and water supplies, weather forecasts, business opportunities, or technical subjects. While there are a few

agricultural information services provided by government agencies and NGOs, they are inadequate to meet the need.

People go to *cabinas* to get information, communicate, and seek entertainment, but the cost is a significant barrier to many people who want to use the venues. Some student users have said they went to public libraries because they cannot afford to use *cabinas*, and *cabinas* are often not conducive to studying because they are usually noisy and actively dynamic environments. For people who do not know how to use new technologies, especially adults over 35, women, and people who do not speak or read Spanish, these venues do not provide training and do not make newcomers comfortable in asking for help. Additionally, nearly all *cabinas* lack the accessibility needed to accommodate impaired people.

Public access to the information and communication venues examined during this research study is affected by their technological capacity and environment in a variety of ways. In general, the physical location of a venue is the most relevant variable affecting access, and is especially important to the people living in rural and remote areas where few operational venues exist. Even special libraries are inaccessible to people in the smaller urban communities.

The political and economic environment is relatively neutral for most of the venue types, but the environment has shown support for *cabinas*, while offering very little support for other venues, especially for the entire library system.

Capacity issues, including content issues, are especially important and deeply affect public access to appropriate and useful public information. Capacity issues marginalize important groups of people.

Venue staff-capacity issues explain much of the bad service and low motivation in public libraries and *cabinas*. While venues provide appropriate and useful information, especially through web information services, there is room

for much improvement. Web information services should become more usable and more widely disseminated. There is a lot of useful information in different repositories, such as the many special libraries for example, but it needs to be reformatted or translated in simpler terms to be more useful to a broader user base.

ICTs, and especially the Internet, have become the preferred way to access information among Peru's younger population in both the urban and rural areas, while those people who do not use ICTs continue to use traditional ways to access information. The Internet is being used to enrich much of the total population, but large groups of the population remain marginalized, and that is especially true for older people, people who do not speak or read Spanish, the illiterate, rural inhabitants, women, and the physically impaired.

Success Factors

There is an urgent need in Peru for specific policies and actions related to technological capacity building and content development. The underserved and marginalized sectors stand to gain a great benefit by accessing appropriate, opportune, relevant, usable, and trustworthy information through ICTs and the Internet, but there is no adequate mechanism in place to produce, collect, and organize such information, link the sources that contain such information, develop appropriate web information services, or train special groups in ICT usage.

Additionally, it is important to invest significant and reliable funding in programs to renovate and enhance public libraries, train or hire professional staff, update collections and develop them to meet public information needs, and to establish collaboration among the various venues. For example, *cabinas* can provide and promote access to information produced in special libraries or offered by web information systems.

Information should be reformatted, translated, organized, and delivered in appropriate ways to

meet the information needs of the population. Such information should reach social networks by being accessible through web information services, or at public libraries and other venues. The success factors needed to connect information sources with social networks must include social participation, be near the community, and offer services tailored to meet community needs.

Usability studies have been identified as a success factor in the development of appropriate information services. Underserved communities should develop the capacity to use the available information. Capacity development should focus on purpose-oriented training, segregation of group interests, and trainer motivation.

For venues to be successful and sustainable, they must have professionally trained and motivated staff who empathize with users. Venue operators must understand and serve local needs, improve local participation and support, collaborate with similar venues, demonstrate the impact of the services, develop a sustainable business plan, recognize and define their core business or public, and introduce an appropriate marketing effort.

ICTs can be a strong tool to improve the services of public libraries, but the libraries need to reorient their target focus to include the population in general, develop staff capacities, and provide appropriate content. Special libraries can play a relevant role by providing meaningful information using ICTs to develop web-information services and to deliver appropriate content in a clear and useable format.

Recommendations

The following recommendations emerged from this study:

- Understand how to integrate cabinas into programs that will provide useful and appropriate information in collaboration with other venues, and implement pilot programs that make cabinas a source of infor-

mation for solving the information needs of the underserved.

- Develop ICT training programs and develop information systems to address underserved and marginalized groups.
- Renovate and reorient public libraries to become more than school libraries so they can meet the needs of the entire population. Establish positive and useful ways to allow them to obtain and use external funds.
- Assess and improve information system usability so users can access adequate information available at special libraries and government agencies.

CONCLUSION

The ability to access ICT services, especially the Internet, is quite high in Peru despite the national economic condition and the widespread social inequalities. However, the access to relevant and useful information through ICTs, and even through more traditional formal channels, such as libraries, is low because there is not enough appropriate and locally relevant content available to meet the needs of the population. Underserved communities are most often limited to accessing information through social networks, but technological innovations, such as mobile telephony and the Internet, are increasingly being used to improve the conditions.

Cabinas are the most widely used and accepted information and communication access venues available in any urban setting, followed by municipal libraries and, finally, special libraries and telecenters. The local governments at the provincial and municipal level support municipal libraries. These libraries, in theory, are designed to serve all segments of the population, but in reality, most are oriented towards students because school libraries are almost inexistent. However, students who had been going to the libraries are now turning to the cabinas to solve their information needs. Municipal libraries are the most common public

libraries and concentrate on serving students, but they feature outdated collections. Special libraries are an important source for relevant information, but they are not readily accessible by underserved communities. Telecenters are not widely available, but they have had a role in influencing policy makers.

Cooperation and collaborative networks among all types of information venues are needed to provide trustworthy, affordable, and accessible information services to the general population, but especially to the underserved communities. Web-based information services are being used to provide information through the Internet in all of the venues that have connectivity. There are unsubstantiated claims that limited programs are developing the technological capacities of older people and people who do not speak Spanish.

While some statistical data on ICT access and use in Peru is available, there is a lack of published research to support the findings, and the research and academic material to describe libraries and telecenters is poor. As a result, much of the information for this study was obtained by interviewing specialists and reviewing non-published materials. Additional studies are highly recommended and additional information is needed to answer the following:

- What are the success and failure factors of the capacity-building programs that apply to groups that are not presently using ICTs?
- What can be developed to establish and improve collaboration among information access venues?
- What impact does Web 2.0 tool usage have on local content development?

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ENDNOTES

- ¹ Examples are local the ICT provider at Huarochiri (<http://www.fitel.gob.pe/contenido.php?ID=32>) and the agrarian information system of Huaral (see Bossio, 2007b).
- ² Law n. 27972. The quote is a translation of Artículo 81 inciso 2.11.
- ³ This increment occurred mostly during 2006 and is explained by the cell phone coverage increment cited above.

Chapter 19

Public Access ICT in Bangladesh

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EXECUTIVE SUMMARY

Access to information worldwide changed dramatically with the widespread acceptance of the Internet and when new types of public access information venues using ICTs (Information and Communication Technologies), such as telecenters and cybercafés rapidly emerged. These changes in information access are creating a significant effect on the population of Bangladesh.

Bangladesh is a small, densely populated nation in Southeast Asia bordered by India, Myanmar, and the Indian Ocean. The land area covers 147,570 sq km and is composed primarily of flat, alluvial plains that support a population estimated in 2007 to be 145 million people.

Following the partition of India in 1948, and the departure of British control of India, a divided Pakistani nation emerged as West Pakistan and East Pakistan. The arrangement continued until East Pakistan gained its own independence following an armed conflict. It then emerged in 1971 as the parliamentary democracy called Bangladesh.

The Bangladesh economy grew at an average annual rate of 5% from 2001 and increased to 6% in 2007, but the country also suffered financial setbacks in the 2008 international economic upheaval. The GDP in 2007-2008 reached US\$79 billion, and the per capita GNP was US\$499. Bangladesh has transformed into a trade-dependent nation.

There is a commonly voiced perception that Bangladesh continues to experience political instability and harbors a considerable degree of corruption. The population suffers from widespread

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poverty and related socio-economic issues, and, according to most estimates, 40% to 50% of the population lives below the poverty line.

In addition to the severe economic and educational constraints, three-fourths of the population lives in rural areas and depends on agriculture as their mainstay. There are few non-agricultural jobs beyond the urban areas. But access to these venues is further constrained by a pronounced gender inequity, and nearly half of the population is female.

The degree to which ICTs are used is deeply affected by the socio-economic and educational realities in the country; human capacity building is a major issue for the huge population. The literacy rate among males is said to be 47.9%, while the rate for females is only 41.4%. An estimated two-thirds of the population has little or no formal education. People under the age of 25 years make up more than half of the population (57.72%), while only 6.22% are over the age of 60.

Bangladesh is one of 25 countries participating in this study, which was designed to assess the public's access to information and communication venues, as well as to examine the role of ICTs across the overall economic, political, and regulatory framework of the country. The study placed an emphasis on the information needs of underserved groups and communities. This study was supervised by the Center for Information and Society (CIS) of the University of Washington and was conducted in collaboration with the government of Bangladesh. The intent of the overall project was to examine both the extent to which the general population has access to public information and the conditions that characterize the nation's communication landscape. Of particular concern were the information needs of underserved communities, the public access to information and communication venues, and the role of ICTs. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

At the completion of this study, the researchers concluded that ICTs play only a limited role in the ability of the public to access the information venues in Bangladesh, and it is imperative that the role must be expanded. There is little evidence of networking among the public access venues, and that also must be expanded to make it possible for any given bit of information to become available across a variety of interested locations. The study recommends a comprehensive plan be prepared for creating a broad range of e-government services to be available through public access venues.

The transfer of information will affect greater numbers of people when that transfer is available through the animation of public access venues through trained operators, and ICTs through a combination of voice, pictures, and text. Getting information to large numbers of people would be nearly impossible in Bangladesh except through ICTs, which can provide great value to huge numbers of illiterate people.

The majority of the potential venue users have extremely limited finances, which is why ICT-based venues should operate with minimal fees or be free to users. The study recommends making Internet connectivity in all public access venues free. Universal Service Funds or free connection vouchers issued from the Bangladesh Telecommunications Regulatory Commission (BTRC) could be introduced.

The research team noted the inadequacy of available data, particularly for public libraries and cybercafés. The in-depth interviews with experts and venue operators played an important role in capturing information related to those venues, and the team concluded that a comprehensive venue census would probably resolve the issue by offering comprehensive and reliable data about the current state of public access venues.

The technical support system for the public access venues must be improved and be available through a common network to serve all such venues.

INTRODUCTION

With the widespread acceptance of the Internet globally, access to information changed dramatically worldwide. New types of public access information venues using information and communication technologies (ICTs), such as telecenters and cybercafés rapidly emerged. These changes had a significant effect on Bangladesh as communication patterns across the globe started to shift, and people learned to access the enormous content of the Internet. Cybercafés equipped with ICTs quickly emerged as an alternative to the limiting mode of individual access to the Internet.

Difficulties in accessing computer services and the Internet were more severe for the people living in developing countries, particularly for those people living in non-urban areas. Thus, telecenters emerged as a solution for the underprivileged populations. As a whole, the information and knowledge access landscape changed most dramatically after the mid-1990s, and public access to information in Bangladesh also evolved during that same period.

Bangladesh became an independent democracy following a war of liberation against Pakistan in 1971. Bangladesh is densely populated, as are many nations in Southeast Asia, and the land, which is composed primarily of flat alluvial plains, supports a population of about 145 million people. The nation suffers from widespread poverty and severe socio-economic issues, and 40% to 50% of the population exists below the poverty line.

The country survives on a modest economy based primarily on agriculture. In 2001 and beyond, the nation's economy grew at an average annual rate of five percent, and that figure increased to six percent in 2007, but Bangladesh suffered financial setbacks in the 2008 international economic upheaval and remains a trade-dependent nation. The GDP in 2007-2008 reached US\$79 billion with the per capita GNP at US\$499. There is a commonly voiced perception that Bangladesh continues to experience political instability and

some degree of institutional corruption, presenting is a major limitation in the country's ability to grow and develop.

From a political standpoint, Bangladesh is a parliamentary democracy following the constitution of 1991, and changes in government are supposed to occur through the outcome of regularly scheduled popular elections. However, the parliamentary election scheduled for January 2007 was cancelled and a state of emergency declared. A military-backed caretaker government took office for two years and announced a plan to hold an election in December 2008. The new government has produced notable positive developments that have included a movement to overcome corruption in the society; there was also a separation between the judiciary and the executive branch of government. The changes also have introduced voter lists and a national ID database with photographs and fingerprints to support impartial elections. However, individual freedom was limited and human rights were openly violated. Many observers perceive that Bangladesh is not meeting the goals that the new administration announced.

Because of the conditions in Bangladesh, the country was selected to participate in this international investigative study to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the nation's overall economic, political, and regulatory framework. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

The degree to which ICTs are used is deeply affected by the socio-economic and educational realities in the country, and human capacity building is a major issue for the huge population. The literacy rate among males is said to be 47.9%, while the rate for females is only 41.4%. An estimated two-thirds of the population has little or no formal education. People under the age of 25 years make up more than half of the population

(57.72%), while only 6.22% are over the age of 60. The male population outnumbers the female population 51.89% to 48.11%, and 76.19% of the total population lives in rural areas.

Ethnically, the greatest percentage of the population is Bengali, and most speak Bangla. Islam is the dominant religion and is observed by 89.58% of the population, while the remaining population is composed mostly of Hindus (9.34%) and a very small number of Buddhists and Christians. There is a tiny group of indigenous people who practice other religions and are far removed from the social and cultural mainstream. The nation's Muslim segment exhibits the highest birth rate of the ethnic and religious elements of the population, and, notably, all of the other groups are experiencing a decreasing birth rate.

With the literacy rate at such a low level, technological capacity is a major challenge in terms of accessing ICTs, and some special interim learning arrangement will be required for much of the population. As another important demographic consideration, three-fourths of the population lives in rural areas, where they depend on agriculture or a very limited number of small commercial activities. Thus, for these people to realize any significant value by having access to ICTs, the available information gained must somehow be especially relevant to their livelihood. Almost half of the population is female, and the cultural and social aspects of accessing facilities and services must be gender sensitive.

Because an overwhelming portion of the population speaks Bangla, the relevance of ICTs depends on the amount and type of content that is available in the Bangla language. Perhaps the most important consideration of all is the extremely low income level of this huge population, which makes affordability and equitable access to ICTs critical.

METHODOLOGY

To conduct this study, the research team combined site visits and interviews to review the physical infrastructure and human resources at a variety of venues, and to determine the information content, service/usage patterns, communication, and knowledge development. Additionally, the team examined the effects of environmental factors, such as government policies, geography, and ethnic and linguistic differences. Following an analysis of the research, the team developed a set of recommendations for stakeholders and decision makers to serve as a guide to improve the ability of the public to access and use the services available in the venues.

The literature on public access to information and ICTs in Bangladesh is limited, and the study team had to rely on only a few available printed and online publications. Some of the documents they reviewed were the reports of the few previous related investigations conducted in Bangladesh. In all, the team reviewed 31 documents and more than 40 websites. Subsequently, key stakeholders and knowledgeable individuals were identified and interviewed.

The study team used both primary and secondary research to examine four types of public access venues - public libraries, community libraries, telecenters, and cybercafés. The physical location of a venue, the venue's funding sources, and the urban and non-urban distribution were important criteria when the research team selected the specific sites for the study. The venues were further classified by the presence or absence of ICTs.

The researchers determined that Bangladesh has a total of 5,211 sites that met the study's criteria for public access information venues, and that 41% of those were in non-urban areas. Twenty-nine venues were selected for the primary research under the study, of which 19 venues were in urban areas and ten were in non-urban areas. The team visited all of the 29 sites to conduct a

survey of the venue operators and, using a structured questionnaire, surveyed 301 users.

Bangladesh has 20,619 libraries of various types, but only 3,349 have been identified as public, and 2,230 of those are community libraries. Among all the many types of libraries in the country, only public libraries were considered for the study, and the term “public” was not defined in the sense of government-financed facilities. Eight specific public libraries were ultimately selected. Six were urban and two were non-urban facilities, and the selection was based the proportionate distribution of public libraries located in 819 urban and 300 non-urban localities. Academic and specialized libraries were excluded from the research, because they are not fully open to the general public and most are available only to specific groups of readers.

Community libraries were considered to be a sub-category of the public libraries and six were selected for review. The reason for choosing this smaller sample size is that community libraries display common characteristics and all are small facilities. Of the six libraries selected, two were in urban locations, and four were in non-urban locations. Again, the selection was based on the overall proportionate totals.

The researchers identified 1,162 telecenters in Bangladesh, and that number increases each day in response to various initiatives. Of the total, seven telecenters were selected for the study, of which three were in urban locations and four in non-urban locations. Urban telecenters also have common characteristics, and most were established by only two organizations), whereas the non-urban telecenters are diversified and were established by more than twenty organizations.

Eight cybercafé venues out of a total of seven hundred nationwide were selected, and the eight were widely dispersed geographically, although all were located in urban areas.

The researchers fully realize the obvious main limitation of the study is related to the limited sample sizes. But because of budgetary constraints,

it was impossible to survey larger samples. Consequently, the researchers attempted to overcome part of the limitation by conducting as many interviews as possible with key stakeholders in the respective study categories.

The geographic placement of the venues was a primary consideration when the researchers selected the specific sites for the study, and the selection further considered urban and non-urban placement. Another key criterion considered the presence of ICT facilities and venue funding sources as important features in classifying the venues.

There are other initiatives that are important in the context of Bangladesh but have not been included in the primary research for various reasons. For example, there are four help lines that are based on mobile telecommunications. But because they did not meet the study criteria for fully venue-based access to information, they were excluded from the study. Furthermore, there are some relatively unusual mobile venues, such as schools and libraries on moving boats and traveling libraries on vehicles. These venues were excluded from the study because they lack ICTs and because of logistical reasons that included the difficulty of contacting them.

In conducting the primary research, a number of inequity variables were identified that are important when attempting to understand their influence on creating access to information. The literacy rate and the access to schools are related to the capacity issue of public access to information.

Bangladesh is a young nation with more than half of the population (57.72%) composed of people under the age of 25. The distribution of the population by gender helps to determine whether equitable access to venues is possible. Because the majority of the population lives in rural areas (76.19%), this variable was crucial in understanding whether or not the existing venues provide equitable access.

The government has done little to create and foster public access to ICTs, and falls far short

of the accomplishments of the private sector and the NGOs. The public library system is almost completely ignored by the government despite its enormous potential to attract young users by providing access to ICTs and by providing capacity building programs.

Community libraries and non-urban telecenters primarily serve low-income and female users. Operators and staff in non-urban telecenters play an important role in helping illiterate users to access information and use the ICT services in many ways that improve the lives of those users.

A major strength of telecenters, especially in the rural and remote regions, is their focus on digitally based local language content, which is available in several forms. The functional partnership between the communities and NGOs serves to create a sustainable social equity model in operating public access venues. There is no horizontal interactive partnership among the four types of venues, and, consequently, mutually good practices are not shared and local content is not used in all venues equally. The shifting media landscape that features cheaper mobile communication methods and ready access to mobile content is probably going to further affect the public-access-venue operating models. The possibility needs further investigation.

The major recommendations of the study are: investment in public libraries along with telecenters and community libraries, collaboration among different types of venues to promote digital content initiatives, solve electrical power grid and supply problems, and invest in capacity building to take advantage of the full potential of public access information venues for equitable growth and development of Bangladesh.

OVERALL COUNTRY ASSESSMENT

Public access to information for this study was examined in terms of the available types of venues and considered in the context of using

ICTs. The study identified three major elements in communication and information landscape of Bangladesh: libraries, telecenters, and cybercafés. Of the 20,619 libraries in Bangladesh, only 1,119 libraries were identified as public, and that figure includes both government-financed and privately financed libraries. Of that total, the government finances 604 public libraries. For the purposes of this study, libraries hosted by foreign organizations, and which are open to the public, were also included in the public library category. Of the 1,119 public libraries, 819 are located in urban areas and 300 are in non-urban areas.

The 16,620 academic libraries in various types of educational institutions comprise the largest venue group in the library system. There are 650 uniquely specialized libraries that are hosted mainly in research institutions and government agencies.

Because of the nature of their function and access, community libraries are a specialized segment within the public library system. Nationwide, there are 2,230 of them, with 830 in urban areas and 1,400 in non-urban areas. Community libraries, which are fully funded by NGOs and other private sources, are basically joint ventures between NGOs and local communities. The ICT penetration in these venues is relatively high at more than 35%, as compared to public libraries where ICTs are available in only 10% of the venues.

Telecenters comprise an entirely separate and new type of public access venue. There are 1,162 telecenters in Bangladesh. They are relatively well distributed across the country, with 750 in urban areas and 412 in rural areas.

There are 700 cybercafés in Bangladesh. All these cybercafés, as well as all of the telecenters are equipped with ICTs. Unlike libraries and telecenters, all of the cybercafés are located in urban communities.

The government's involvement in the national library system reaches only 6.63% of the nation's libraries, and falls well below the 15.20% for NGOs and the dominant 78.09% for the private

sector. Of the four types of public access venues considered in this study, public libraries and cybercafés both play very small roles in addressing social inequities with regard to accessing information through ICTs in underserved and remote areas. This situation is most apparent when noting that three-fourths of all public libraries and all of the cybercafés are located in urban areas. And, in terms of ICT penetration, only 10% of the urban public libraries have any ICTs; there are none in non-urban libraries.

As a service of a public access venue, ICTs are readily accepted when they are available in a community. However, because of inappropriate budget and other resource allocations, the general lack of ICT penetration, and limited user skills, ICTs are very seldom used fully or effectively even when they are available. Most of this imbalance is the result of the composition of the most common user base: public libraries predominantly serve middle-income users while only 11% of the users come from the low-income population.

The community libraries and telecenters have become an alternative to public library services with regard to public access to information. Unlike public libraries, community libraries and telecenters mainly serve non-urban populations and the lower-income segments of society. The community libraries and telecenters have evolved to become service and activity centric. The cost of accessing these venues is low compared to other types of venues that charge user fees. The level of social appropriation of technology is much higher in community libraries and telecenters. Most of the users of these venues are female, as well as the young population.

Significant illiteracy and limited computer literacy have dictated special arrangements for making ICTs immediately useful to these disadvantaged people. Through helpful staff members, about 30% of the telecenters already provide access to ICT services for illiterates and other people who lack computer skills; 60% of all public access venues that have ICTs provide computer training.

Digital content is a major strength of Bangladesh's access to information. About 95 websites offer content in the Bangla language, and about 600 websites appear in English and other languages. All newspapers published in Bangla have online web versions, which is an extremely important source of local-language content. The bn.wikipedia.org website has more than 18,000 entries, and the www.jeeon.com.bd site has more than 30,000 pages of Bangla content targeted toward underserved communities. The government also focuses on content issues in both Bangla and English at www.forms.gov.bd and at www.bgpress.gov.bd. There are other initiatives that provide related, relevant content for other media: www.cellbazaar.com is one example.

The broad government policy in Bangladesh reflects the growing need for public access to information, especially through ICTs. Some areas have seen significant progress, while progress has been slow in others. By July 2008, the country in general had reached a technological penetration that surpassed all forecasts. Policies governing competition and deregulation were widely believed to be the key to such phenomenal growth.

In June 2008, the government reduced the price of Internet access for a 1 Mbps line by 60% from US\$1,000 to US\$400. Mobile service providers offer Internet connectivity all across the country through existing standards of technology (EDGE, GPRS, and CDMA), which allows the public access venues in rural areas to offer Internet-based services. The Bangladesh Telecommunications Regulatory Commission (BTRC) is in the process of licensing 3G and wireless technology.

Legal VoIP (voice over IP) service was launched in August 2008 and created a host of opportunities for public access venues to generate income, particularly among the rural telecenters. This service initiative happened as a follow up to the announcement of the 2007 International Long Distance Telecommunication Services (ILDTS) Policy. The import duty on ICT equipment was reduced to 3% in June 2008, which can reduce

the acquisition costs to citizens and the public access venues.

Although the support of the government in creating public access venues has been negligible, a number of initiatives established by a few ministries have begun to open the way toward developing a functional network to link the public access venues nationwide. Thirty-nine quick-win e-government projects have been identified by the government for immediate implementation, but the existing public library system is ignored and remains outside these prioritized government programs.

The government has issued a wide range of related initiatives that include: (1) online payment, (2) alternative submarine cable, (3) ICT policy reviews, (4) streamlined coordination of ICT-related activities, (5) an action plan with appropriate budgetary allocations to implement ICT and e-government roadmaps, (6) a tax incentive for channeling resources to expand a network of public access venues, (7) enactment of an appropriate Right to Information Act, and (8) mobilization of USO funds to roll out a network in rural areas and expand a network of public access venues. Quick progress towards enhancing public access to information and ICTs depends heavily on the successful implementation of these initiatives.

The researchers have found a staggering number of information needs that could benefit the population enormously if the needs were resolved. For example, there is an urgent need to disseminate current information regarding agriculture, health, education, employment, specialized skills training, government service, legal support and civil rights (especially with regard to women), non-farm income opportunities, small business development, disaster preparedness, entertainment, government programs to aid vulnerable groups, and current news.

There is a strong need for technological capacity building programs across most of the entire population, but the need is especially strong among the underserved communities and

groups. People traditionally have preferred to discuss their interests and concerns face-to-face, and they remain relatively less comfortable with technologies. However, the increasing use of telecenters indicates that the use of technologies to access information is gaining momentum, even in non-urban areas.

The growing collaboration among the stakeholders in Bangladesh is seen as a means to maximize the benefits offered through public access venues, as well as to access information through other media. The collaboration seems to be strongest among national and international institutions, national initiatives, and government and non-government institutions. The government of Bangladesh is collaborating with UNDP on a number of aspects of public access to ICTs. Particular initiatives have been issued to establish telecenters in government institutions and to create e-government services for citizens. Some government forms in digital format are available both on the web at www.forms.gov.bd and on CD-ROMs.

The Bangladesh Telecenter Network (BTN) is now working to encourage and assist grassroots-level entrepreneurs and institutional initiators to open new public access venues through collaboration with national and international institutions, such as telecenter.org, Intel, Microsoft, IRRI, and UNDP. The Bangladesh Telecenter Network (BTN) plans to launch an exchange program among the different types of telecenters, and a similar program may be extended to other types of venues.

Collaboration is beginning to appear between many types of institutions in Bangladesh and international organizations. For example, Microsoft Unlimited Potential and D.Net collaborated to establish technology-based training centers. In another example, the Computer Learning Program (CLP) has operated computer-learning centers (CLCs) in educational institutions since 2004. This program was established by the Volunteers Association for Bangladesh in New Jersey and was implemented by D.Net.

Relief International's and other organizations are collaborating to add Internet connectivity to the CLCs, as well as Internet-based activities among several different schools. This collaboration enhances learning opportunities and the ICT skills of children. D.Net's Pallitathya (www.palitathya.org.bd) and Teletathya (www.teletathya.com) programs collaborated to enhance the services of the Pallitathya Kendras rural information centers (more on these below).

The analysis shows that collaboration among venues of different kinds can enhance the effectiveness of the venues by maximizing synergies and taking advantage of complementarities in their services. The integration of services and activities is a major strength of community libraries and non-urban telecenters and can be replicated in other venues. Content sharing may be the place to begin, and the combination of services and activities of community libraries can be replicated in telecenters.

Collaboration between government agencies and public access venues can make e-government services more accessible by the disadvantaged people in both rural and urban areas. The collaboration between venue-based and non-venue-based services might enhance the usability of the public access venues. For example, integration of the e-health program offered by Amader Gram across all public access venues might help to ensure the success of the program. At the same time, people might find the venues worth visiting.

This study determined that the availability of various kinds of locally relevant content are typically not known to exist in cybercafés, community libraries, and public libraries. Sharing knowledge about content could enhance the performance of these venues and sharply increase their user base. Rejuvenating public libraries by integrating ICTs would significantly improve public access to ICTs.

The government's perception of public access venues revolves largely around private sector initiatives and undermines the role of the government in helping to improve the standard of living for the underprivileged. Conversely, the Internet, with

all of its features, is a particularly attractive and socially inviting realm in the public's perception with regard to public access venues. By expanding on that concept and by making the Internet features available in all venues, the effect would become particularly important to the success of the venues. Children and students find public libraries to be an attractive place to gather and socialize, and they consider community libraries to be equally attractive places to access educational CDs.

The liberal usage regime among the venues provides opportunities for users to explore a variety of opportunities related to jobs, education, and entertainment. However, games in public access venues are generally discouraged, especially in urban venues, and video chats are restricted in many cybercafés. Many venues prohibit users from downloading games. This may be due somewhat to bandwidth limitations. Library users can only download programs to install them on their own personal computers, but users can download music and movies in all venues. All venues permit users to create content such as web pages, but not all venues have the capacity to fully support such development. There are no content filters in the venues, but social-networking sites, such as Facebook, are accepted.

The technological landscape across the globe shifts constantly, and Bangladesh is responding to this trend. There are strong indications that mobile telephony will change the use of desktop personal computers significantly. Many stakeholders state that the shifting scenario will significantly alter usage in public access venues. Already, the mobile phone providers continually seek opportunities to offer various "value added" services to the consumers. The new mobile-based services commonly include news services in collaboration with leading print and electronic media, live-score updates for sports, bank account information services, utility bill payments, health information, voice-based consultation services, online stock trading, educational content, and mobile phone-based television.

Web 2.0 tools are being used in a number of initiatives, such as Bangla wikipedia (bn.wikipedia.com), while journalists use blogs and an information portal developed with Joomla (www.jeeon.com, www.mission2011.net.bd). The use of portable computers like the Classmate PC and Eee PC of ASUS brings telecenter-based services directly to the users in the communities. Furthermore, multimedia content also is being delivered in the same manner with the help of these small portable personal computers.

ICT promotional initiatives are becoming increasingly innovative, and even traditional songs are being used to promote telecenters. For example, the “pot” song, which has long been a popular form of story telling in the southern districts of Khulna and Bagerhat, is used to inform people about the importance of information, knowledge, and the services of telecenters. In June 2008, the government authorized community radio broadcasting with provisional licensing for two years. The community radio will be an additional channel for accessing information by the underserved communities. Internet-based radio is another innovative approach that can be used to broadcast content to underserved communities, and one such initiative is available already at www.netbetar.com.bd.

VENUE ASSESSMENT

Public Libraries

Libraries are the oldest and most commonly used public information venues in Bangladesh, but the research for this study, with regard to inequity variables, shows that the public libraries do not promote equitable access to information and knowledge. The geographic distribution of public libraries overwhelmingly favors urban populations when 73% of the public libraries are in urban communities and only 27% in non-urban areas. The imbalance clearly does not promote

equitable access when 76% of the population lives in non-urban areas.

Urban public libraries are used predominantly (69%) by middle-income groups, while only 11% of the users come from low-income groups. Only 20% of the low-income segment uses the ICTs available in urban public libraries. In non-urban areas, low-income people comprise 40% of the users. In urban public libraries, 78% of all users are male; among the ICT users, 90% are male, but only 55% of the users in non-urban public libraries are male.

Unlike cybercafés and telecenters, public libraries have many young users, and 67% of all public library users in non-urban areas are under the age of 15. This level of usage highlights the opportunity to introduce ICT-based services for young users, particularly when they do not visit cybercafés and telecenters. The average age of urban users is different from the non-urban users, and 51% are 19 to 25 years old. The survey revealed that the average annual number of visits in a public library in urban areas is 3,751 compared with 4,168 visits in non-urban areas.

Only 10.13 percent of urban public libraries exhibit any level of automation, and none of the non-urban libraries appear to have any. Only a few public libraries offer ICT-based services, and even those are not used efficiently. The use of the Internet in urban public libraries is distributed exclusively among browsing (40%), e-mail (30%), and educational CDs (30%). The distribution within Internet browsing is distributed among education (25%), health (25%), current news (25%), entertainment (15%), and job searches (10%). A limited number of users watch television in a few public libraries.

The researchers found it interesting that no one accessed any of the social-networking sites, given that all users of ICT facilities are from urban locations.

Public library use in non-urban areas has become a daily routine for 23% of the users, with 37% visiting once a week. In urban libraries, 82%

are regular users, either daily or weekly. Public libraries offer an unusual opportunity in that none of them offer any ICT training or capacity building.

Libraries are the most underutilized public access venues in the country. Despite the general high regard for libraries in the communities, they continue to lack appropriate resources. When ICTs *are* available, they are not fully utilized. The access barriers that users face are cost (33%), inadequate content (22%), inadequate services (19%), (18%), hours of operation (3%), lack of adequate training, inappropriate language of content (3%), and location (2%). The technological capacity of the staff in government-funded libraries is poor, but it still is better than in non-government libraries, and the allocation of funds and resources is problematic.

The study identified a number of positive aspects of public libraries. Because places for recreation are limited, young people find public libraries socially attractive as places where they can gather, meet with friends, and find books to read. As a public access venue, parents view public libraries as acceptable places for their children to gather, and that is one reason why young people are the largest group of users. Many consider ICT use in public libraries to be relatively safe, but still favor strict usage controls. The public libraries are not usually located in a public marketplace, and, as a result, the libraries are considered to be relative safe for female users.

Many innovative non-government public library initiatives are in place. In particular is an initiative by Bishwa Shahitya Kendra (www.bangladeshlive.net/975565.html) targeted at underserved communities through a mobile library system (using cars or vans) that serves 41 districts. In another instance, there are mobile schools and libraries on boats (www.shidhulai.org). The most notable initiative for creating online content related to library users is www.bdresearch.org.bd, which draws resources from national research institutions. Other similar initiatives are described at www.sdnbd.org, www.cpd.org.bd, and www.bids-bd.org.

Each of these developments is innovative, and, collectively, they indicate how the potential exists to serve Bangladesh and to foster public access to information, especially among underserved communities and groups.

COMMUNITY LIBRARIES

Community libraries are a subset of the Bangladesh public library system. But unlike the public libraries, the community libraries are more vibrant and useful to the communities and have become an alternative to the failures in the public library system. Sixty-three percent of community libraries are located in non-urban areas and primarily serve the low-income segment of the society, much the way telecenters do.

Urban community libraries report that 41% of all of their users and 52% of their ICT users come from the low-income segment of the population. The percentages are different in non-urban community libraries where 56% of all users and 50% of the ICT users come from the low-income segment of the population. The gender ratio is nearly evenly balanced in both locations. The gender ratio among the younger visitors in the two locations also is nearly equal. Younger visitors represent the largest category of users in both locations. Visits by the youngest age group are highest in community libraries for both urban and non-urban areas and for both general use and ICT use. Only non-urban public libraries compete with this figure. The number of visits by the youngest age group is slightly higher in community libraries than in public libraries and telecenters. The annual average number of visitors to non-urban venues is 8,070 and 6,113 in urban venues.

The combination of activities and services make the venues more attractive to the communities, and the activities of a community library target various user groups. Students of each class level visit a local library on a regular schedule to participate in a teacher-led discussion of the

headlines of a daily newspaper. A librarian often presents biographies of eminent personalities. The librarian also attempts to inspire young readers to retell the stories they read, and the children recite from books. Most of the community libraries feature a children's corner, where children also are encouraged to play musical instruments. Prominent persons are sometimes invited to attend and share their stories with the children as well.

Many of the community libraries sponsor an outreach program for lending books that uses a vehicle to go door to door. These outreach programs help women and elderly people who often cannot visit a library. The outreach programs are widely accepted and highly regarded. In the Brace Education (BRAC) operated community libraries, at least 20% of the mobile library service users are physically impaired. The model on which the BRAC community libraries operate is innovative and enjoys a strong community commitment. The initial operating resources come from the community, and when a sufficient amount is available, BRAC can then open a library in that area.

ICT services are more readily available in community libraries than in public libraries and reach 36% and 35% percent in urban and non-urban venues, respectively. The most frequent ICT use in both categories of urban libraries is Internet browsing (at 29% of the total number of users), but in non-urban libraries, the most frequent use is directed toward watching educational CDs. The most sought-after information in urban libraries is divided among education (31%), followed by entertainment (20%), current news (17%), government services (11%), job information (8%), health (6%), personals (3%), law and human rights (3%), and business operations (3%). In non-urban venues selection the order is current news (29%), education (27%), entertainment (20%), agriculture (9%), job information (9%), and health (6%).

The community libraries are affordable to nearly all people. Also, none of the users in any community library identified cost as a barrier to access. Fees for Internet browsing are the lowest in these libraries at about US\$0.15 per hour. The

use of a computer for watching CDs is the most widely accepted and socially attractive aspect of ICTs among the users in non-urban community libraries. For urban users, that degree of attractiveness is given to Internet browsing. The integration of ICTs for mainstream learning is probably the biggest success of these community library venues. In urban libraries, 88% of the general users are regular visitors and make library visits a regular part of their daily lives. The same is also true for ICT users (at 84%). In non-urban areas, 94% of all of the users are regular users and 42% are daily visitors.

The true potential of community libraries, from the perspective of using ICTs, is not yet fully realized primarily because librarians and teachers, as a group, are unaware of the potential of the Internet. The involvement of students who use the Internet to prepare their studies will likely further expand their view of the Internet's value. It also was observed that the stakeholders of the venues most often were not aware of the availability of local language content (both off-line and online) that could further enhance the use of the venues. Unfortunately, the community libraries offer a completely inadequate level of training capacity and no certification system exists.

Telecenters

Although cybercafés and telecenters are generally similar kinds of facilities, there are some fundamental differences. Telecenters tend to focus on information and knowledge services for underserved people, especially in rural areas, while cybercafés mainly serve the demand for communications in urban and semi-urban areas. Also, cybercafés operate as profit-driven commercial venues whereas not all telecenters operate for profit. A few telecenters operate on a hybrid income model. Telecenters have a diverse user base in terms of occupation, age, and income in a way that makes them have fewer user inequities than cybercafés.

Only non-urban telecenters appear to reach out to the lower income population, which commonly makes up 60% of the users. Most non-urban telecenters have at least one female on staff, which plays a strong role in attracting large numbers of female users; the number of female users often exceeds 60% of the venue's total. The study results show that people between 19 and 45 years of age (93%) are the predominant users of urban telecenters, but represent only 61% of the users in non-urban areas. By comparison, most users in community libraries are under 15 years old.

The total annual number of users in telecenters is relatively low, with 3,466 in urban venues and 5,003 in non-urban venues. The low numbers are commonly attributed to a general lack of public awareness regarding the available services and the value those services can bring to daily life. Low bandwidth availability also has been identified as a problem in telecenters. Although non-urban telecenters have activities that involve the members of the community, they are less activity-driven than the community libraries. The cost of Internet use in telecenters is cheaper than in cybercafés and averages US\$0.22 to US\$0.30 per hour.

Other than mobile phone service providers, no Internet service providers offer Internet connectivity in non-urban locations. The availability of customized local language content is a major strength of telecenters, but the quantity is still inadequate. Because of a lack of technological capacity, not many users can directly access content. Staff assistance is a valuable asset in telecenters, enabling technologically illiterate users to access content that directly meets user needs. Audio-visual content was determined to be more useful than text or picture-based content.

Venue location is a very important factor in improving women's access to telecenters. Unfortunately, most telecenters are located in very heavily populated and active centers. Although parents typically seem to have few apprehensions about allowing children to visit telecenters, it was thought that a lack of proper supervision

of their activities is a major reason why so few young children actually visit the venues. The high percentage of regular users clearly indicates that those who visit the centers find them useful. The introduction of female staff visiting women at their homes can serve as a trust-building exercise.

Cybercafés

There are 700 cybercafés in Bangladesh, and all of them, as well as all telecenters, are equipped with ICTs. Unlike libraries and telecenters, all of the cybercafés are located in urban communities and are concentrated mostly in district towns. These venues have an average of 12,000 visitors each year.

Among all the different public access venues, cybercafés rank last in meeting the needs of the underserved communities in urban areas. Wealthy and upper-middle-class people form the main customer base for cybercafés; research indicated that 93% of the cybercafé customers belong to middle- and high-income groups.

Chatting and e-mail are the most common uses of computers at cybercafés; website browsing and using the Internet for business purposes are uncommon. Limited numbers of students browse educational websites, but, in general, few visitors spend time browsing. Cybercafés are quite popular among students, teachers, journalists, and some businessmen, and most of these users are male. Young children rarely use cybercafés, and cybercafé owners generally are not aware of local language content.

Cybercafés typically provide much greater user privacy when compared to other venues, but the cost of access is the most critical barrier to access in cybercafés. The venue location often limits equitable access, and most cybercafés are located in marketplaces where visits by women often are constrained by cultural and safety concerns. For that reason, two-thirds of the cybercafé users are male.

SUCCESS FACTORS AND RECOMMENDATIONS

The results of the study indicated that community-driven initiatives produce the best results, cost sharing practices work better than providing complete financial support, and that effective implementation of policies and initiatives must begin at the top of the applicable organizational chain.

Excessive controls and constraints imposed by investors from outside local communities create an environment that leaves little or no opportunity for local communities and initiators to apply creativity and innovation. For example, public libraries and community libraries rarely falter or close if the local community feels compelled to keep them operating. Because of a lack of new ideas, they may not function at their full potential, but if ideas are shared and a reasonable degree of technical support is provided, the venues stand a far greater chance of success. The Jessore Institute is one such successful example among the public libraries.

Community libraries are locally oriented and operate effectively to serve the local population and enhance educational opportunities, daily living conditions, and access to information. Consequently, the results of this study recommend promoting community-driven initiatives to build a network of public access venues to accommodate the best combination of ownership, technologies, services, community activities, mobility, and resolution of inequity variables.

The significant amount of local content available through telecenters and community libraries will do much to ensure ICTs are relevant to the underserved population. This study recommends investing heavily in developing need-based local language content with a focus on serving the neediest groups in the society. The content should be developed in a variety of forms to include text, pictures, animation, and their innovative combinations. This content will become far more valuable

if it is deliverable through multiple channels. The study indicates that visualization and voice-enabled text deliver excellent results.

There is a strong need to combine activities and services to make a venue truly public and open to the widest possible range of users. Although community libraries, telecenters, and public libraries are said to be public, most have access inequities of one sort or another. The introduction of activities that involve various community groups tends to make a venue more people-oriented and trustworthy in the community.

Telecenters are attracting greater numbers of disadvantaged users, as they deploy more appropriate and locally relevant content and services. Restrictions against playing games coupled with high user fees play a role in inhibiting potential young users under the age of 15 in non-urban areas.

Deployment of trained staff that can make ICTs relevant to the disadvantaged people is probably the biggest single factor in the success of non-urban telecenters. The research shows that where such a person is available, the user base of a telecenter is larger and better served.

A comparison among public access venues shows that the performance of venues with Internet connectivity far exceeds of those that do not. The study recommends establishing Internet connectivity in all types of public access venues without adding a user fee. Universal Service Funds, or free connection vouchers issued from the Bangladesh Telecommunication Regulatory Commission (BTRC), might be introduced. A venue with Internet connectivity is a valuable addition to a community in terms of providing access to the wealth of information available on the Internet. Furthermore, communication capabilities expand enormously when the features of the Internet are available.

One of the major problems in all three types of venues studied is the common lack of an uninterrupted power supply, and the success of many public access venues is largely dependent on that single factor. A reliable power supply is

slightly less of an issue in cybercafés. The study strongly recommends investment in equipment that consumes low power and which has a long battery life. Focusing on good equipment is the most effective solution for the non-urban areas, where the reliability of the power grid is most often described as “dismal,” and the power-grid issue is not expected to improve in the foreseeable future.

In Bangladesh, the private sector is motivated and works toward creating public access to ICTs and information and knowledge, and far exceeds the efforts of the national government. However, little progress will be accomplished without a stronger and proactive government involvement through investments and appropriate effective policies. Furthermore, no agency, company, organization, or ministry has stepped forward to champion the development and modernization of the venues. The information access landscape in Bangladesh urgently needs this leadership.

The presently available range of services in public access venues is limited. The creation of a comprehensive plan for creating and supporting public access venues to deliver e-government services is highly recommended. A government policy intervention to ensure that the public access venues are focused and work to eliminate the many inequities is essential.

The technical support, and especially the troubleshooting capability needed to serve the community libraries and telecenters, is grossly inadequate. The study recommends strengthening the support system for the public access venues, especially in the technical and operational areas. This effort should further be supported by building a network among all public access venues to serve them jointly and to avoid duplicating mistakes.

The power of networking, particularly virtual networking among the operators of the public access venues, is a relatively unexplored area that needs further study. Appropriate lobbying might help to resolve the issue of using pirated software

in public access venues by using cheaper versions of any required software.

Resource mobilization is an essential factor for creating an adequate number of public access venues. The study recommends mobilizing the resources from international bi-lateral, multi-lateral, and corporate donor agencies to build and sustain such a system by showcasing success stories and highlighting the win-win potential for all parties. The resources needed should not be construed to mean only financial resources, but also must include intellectual resources.

The study further recommends creating an international benchmark for public access venues to channel global resources. This can be accomplished efficiently by applying the knowledge generated through this research.

CONCLUSION

ICTs hold great potential for public access venues, especially in underserved communities, and are the only way to make a single bit of content available simultaneously in more than one venue. The only alternative is the impracticality of distributing multiple copies of a document or other item. Given the circumstances that exist in Bangladesh, knowledge transfer among most of the underserved communities is most effective when delivered through animation and combinations of voice, visual images, and text. ICTs are the most effective and practical way to serve illiterate people and others who have very little technological capacity. Furthermore, affordability is the chief reason in a society like Bangladesh of why there is no alternative to public access venues equipped with ICTs.

The researchers concluded that along with the development of technology, the structure, form, and concept of public access venues will evolve and should not be considered to be static. The researchers strongly recommend conducting ad-

ditional studies to examine and understand the dynamics introduced by technological development that define and shape the information landscape.

Throughout this study, the near total absence of detailed and reliable secondary data was a significant constraint. This situation was particularly true with regard to public libraries and cybercafés. The in-depth interviews played an important role in capturing information related to those venues. A well-designed census of the venues would do much towards resolving the secondary-data issue.

This study is important within the context of the information and technological landscape in Bangladesh. It can serve the decision makers who shape policies and initiatives to realize the country's intent to build a knowledge-based society. It is reflected in the current national ICT policy and the understanding that public access venues are essential in Bangladesh where one-third of the population continues to live in poverty. The study is believed to have set a benchmark in understanding the public access to ICTs.

The researchers concluded that the policy environment is favorable, and the need to implement ICT services is high in Bangladesh. This finding is one of the most significant of the study. It is also expected that the study can help highlight the need for investment in some key areas, where international investment may be easier to attract.

The study provides an overview of the public library system and the extent to which it suffers from the prolonged neglect and numerous inequities. It is expected that the government would respond by investing heavily and creating a vibrant ICT-based library system.

There are no collaborative agreements among the four types of venues that could allow all of them to apply the best features each one has to offer, especially with regard to technological advancements. One problem that affects all of the venues was the common and widespread underperformance in the hardware and software

caused by technical trouble with ICTs, and the lack of an ability to resolve the issues. It was also revealed that only 5% of the venues use licensed software. The Bangladesh Telecenter Network and Bangladesh Open Source Network (BDOSN) are working to provide open-source solutions for the telecenters.

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Chapter 20

Public Access ICT in Nepal

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EXECUTIVE SUMMARY

The Republic of Nepal is a landlocked country in South Asia bordered by China to the north and India to the South. The modern Nepali state was formed in the mid-eighteenth century and existed as a kingdom until 2006 when it transformed into a federal democratic republic. With a population of 28.3 million, Nepal faces acute challenges with regard to development. About 31% of the population lives in deep poverty on an income equivalent to US\$1.00 per day. With a literacy rate of only 56%, access to critical information related to education, health care, and employment has always been a matter of utmost importance for the majority of the people in Nepal.

Public access venues, such as public libraries, community libraries, telecenters, cybercafés, and community radios are expected to provide access to information. This study was aimed at examining different aspects of such venues while reviewing the access, capacity, and environment associated with the venues. The research was expected to

focus on the overall scenario regarding public access to the venues while exploring the opportunities for further enhancement of the sector as a whole. The specific venues selected for the study were the public libraries, community libraries, telecenters, and cybercafés.

The research was conducted using a framework designed by the Technology & Social Change Group at the University of Washington. During the first phase of the research, the study team consulted with subject matter experts in telecenters, community libraries, public libraries, cybercafés, and information and communications technologies (ICTs). A particular emphasis was placed on the information and communication needs of underserved and remote communities and groups. In the second phase of the study, information and data gathered from other primary and secondary sources were further validated and updated by conducting field surveys of venue operators and users among all four of the venue types. The researchers also conducted several focus-group discussions to further validate the findings.

Although the venue types that were studied have been successful to some extent in enhancing

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access to information, a formal coordinating and networking mechanism needs to be explored to enhance knowledge sharing and provide more effective ways to delivery their services. To exploit the sustainability and maximum impact of the venues, the venues can also be integrated with ongoing development initiatives at the local level. To take advantage of the favorable policy environment in Nepal, it is extremely important to focus on program implementation of development initiatives. The various segments of the political, commercial, and social sectors of the country should make an ongoing effort toward this end to ensure that policies can be functionally implemented.

The research has revealed the importance of public access to communication venues for empowering people with appropriate information and creating a knowledge-based society. Community libraries are deep rooted within the communities and have been able to create a positive impact on society. Public libraries seem to cater to the information needs of most of the population and have great potential to be especially beneficial in the underserved communities, if the libraries receive proper planning and coordination from the various governing agencies.

Telecenters, as ICT-enabled venues, are seen to have great promise for accelerating access to information by the underserved communities. Cybercafés are found mostly in urban areas and have become very popular as ICT-enabled communication venues. But for the most part, they cater to the information needs of urban youth and do not appear to reach the underserved segments of society.

COUNTRY OVERVIEW

Introduction

The Federal Democratic Republic of Nepal is a landlocked country in South Asia bordered by

China to the north and India to the South. The modern Nepali state was formed after its Unification by Prithvi Narayan Shah¹ on December 21, 1768, and existed as an absolute monarchy until 2006, when it transformed into a federal democratic republic. The diverse landscape ranges from the humid Terai plains in the south to the mountainous Himalayas in the north, which makes that area a major tourist destination. The Himalaya Mountains extend across Nepal's northern and western parts and include eight of the world's ten highest mountains, including the highest, Mount Everest.

Nepal is roughly 800 kilometers (500 miles) long and 200 kilometers (125 miles) wide, and has an area of 147,181 sq km (56,827 square miles) divided into 14 administrative zones. The 14 zones are further divided into 75 districts, with a chief district officer heading each district. The administrative zones are grouped into five development regions: Eastern, Central, Western, Mid-Western, and Far Western.

From 1768 until 1990, the kingdom of Nepal was an absolute monarchy, but when faced with a popular movement, King Birendra, agreed to massive political reforms. He established a parliamentary monarchy with the king as the head of state and a prime minister as the head of government. In 2006, an interim constitution was written that established an interim House of Representatives. In April 2007, the Communist Party of Nepal (Maoist) joined the interim government.

On December 28, 2007, the interim parliament passed a bill that made Nepal a federal republic, and on April 10, 2008, Nepal held the first election for the constitutional assembly. The Maoist party led the poll results, but failed to gain a simple majority in parliament. On May 28, 2008, lawmakers in Nepal legally abolished the monarchy and declared the country a republic, ending 239 years of royal rule in the Himalayan nation. Voting for the election of the country's president and vice president took place in the constitutional assembly, electing Dr. Ram Baran Yadav as the first president of Nepal. On August 15, 2008,

Pushpa Kamal Dahal, the Maoist party leader (who also is called “Prachanda”) was declared the first prime minister.

Nepali is the official language and is spoken by almost 60% of the population, although all languages spoken in Nepal can be used for official purposes.² Nepal has a broad combination of cultures, languages, and religions, and a huge majority practices Hinduism, but the country has a strong Buddhist tradition. Until 2006, Nepal was the only officially Hindu country in the world until the House of Representatives declared Nepal to be a secular state.

With a population of about 28.3 million,³ Nepal is one of the poorest countries in Asia, with a third of the population living on an estimated US\$1 per day. Despite the migration of large numbers of people to the southern plains or Terai in recent years, most of the population still lives in the central highlands. The northern mountains are sparsely populated.

The population is ethnically diverse. The 2001 census listed 103 distinct castes and ethnic groups including an unidentified group. The most prominent castes and ethnic groups identified were Chetri, Hill Brahmin, Magar, Tharu, Tamang, Newar, Muslim, Kami, Rai, Gurung, and Damai/Dholi. The remaining 92 groups, including the world-famous Sherpas, each constitute less than 2% of the population.⁴

The social and cultural structures of the country are marked by long-established inequities. For example, the society in general discriminates against women, and discriminates by some specific laws in particular. In most communities, a woman's position is governed by patriarchal traditions, and her place is generally considered to be in the home where her main duties include childrearing and household chores. A woman's access to education is limited and very few have opportunities to engage in activities that would provide them with a greater degree of economic or social freedom.

Other groups face discrimination in many ways, and 20%⁵ of the population suffers directly from age-old socio-economic and political discrimination based on the Hindu caste system. The concept of “untouchables,” called the Dalits, is the single most outrageous example. The people identified as non-Dalits, including both the caste and ethnic communities in the hill and Terai regions, as well as in rural and urban settings, prohibit any Dalits from entering any public places, including religious sites.

In a somewhat-less-harsh inequity, youth constitute an isolated class when it comes to participation in decision-making. Yet, government recently recognized the potential held by this segment of the society, acknowledging the importance of disseminating information to this group to mobilize them.

The distinct differences among people of different social categories become clearer when looked at through the lenses of access to productive resources, educational attainment, and participation patterns in decision-making bodies.

Regarded as one of the poorest and least-developed nations of the world, Nepal has a very bleak economic environment that directly affects the use of public information venues. In a nation where the majority of the population lives on the threshold of poverty, only a very few people use the available information venues on a regular basis. Public information venues in Nepal are a culmination of community readiness, the interests of government, and the realization that information venues can greatly improve the quality of life, especially among the underserved communities.

Nepal was selected to participate in this international study in order to assess the ability of the public to access information and communication venues, and also to review the role of information and communication technologies (ICTs) across the overall economic, political, and regulatory framework. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, how they real-

ize successes, and how they meet the needs of underserved communities and groups.

METHODOLOGY

This study began in 2008 with a literature review of approximately one hundred documents and an examination of the limited online source data related to public access and ICTs. The researchers conducted interviews with key decision makers and visited readily accessible venues. The researchers selected a specific set of venues for the fieldwork after considering the physical accessibility of the venues and ended up focusing on public libraries, community libraries, telecenters, and cybercafés.

Certain other public-information sources, such as community radio broadcasts, university and special libraries, media centers, and community teashops, were excluded because they were either open only to select groups or lacked a formal institutional mechanism.

The research team was led by Dr. Rohit Kumar Nepali, an anthropologist with more than thirty years of experience in research and development in South Asia. As the Executive Director for South Asia Partnership International (SAPI) since July 2004, he has provided leadership towards the organizational goal of achieving solidarity between community-based organizations and issue-based networks in South Asia.

Shikha Shrestha, a knowledge-sharing expert and coordinator of the Bellanet regional presence in Asia was directly involved in different research initiatives, ranging from research on knowledge management to research on the political participation of women in Nepal.

Bibhusan Bista was a member of the research team and is an information-system graduate and student of social science. He has more than five years of experience in the ICT sector in both Nepal and South Asia. He was involved in different ICT4D (Information and Communication Tech-

nologies for Development) research initiatives in Nepal and South Asia, including telecenters and the general status of ICTs.

Khushbu Agrawal was a research associate for this study and is a business-administration graduate. She successfully conducted research on internship opportunities for students in Nepal for the Youth Telecenter initiative of SAPI (South Asia Partnership International), SAP (South Asia Partnership) Nepal, and Bellanet Asia.

Several different data-collection techniques were used to complete this study. Individual interviews were conducted to learn the perceptions of the users in the public information and communication venues, with a special focus on the underserved communities. Individuals were selected to participate in the interviews on the basis of their recognized expertise and knowledge in a particular field. Two focus-group discussions were organized to cover libraries and telecenters. In both of the focus-group discussions, the preliminary research findings were shared with the participants for validation. The opinions of the participants were sought to determine how to make the reports more valuable.

For primary data collection and on-site observations, the research team visited 71 sites nationwide. The venues were selected to include all four venue types in different geographic locations. For the quantitative data collection among the users and venue operators, surveys were conducted in different parts of the country in both rural and urban areas. A total of 121 respondents were surveyed in 67 venues, including public libraries, community libraries, telecenters, and cybercafés.

The study began in Nepal with a literature review of approximately one hundred documents and publications to introduce the researchers to the overall field of public access venues in Nepal, the ICT landscape, the information needs of the underserved communities, and plans and policies. The documents included papers that were available online, policies related to different aspects of public access and ICTs, news articles, and other

books and documents that were available. Also, for an in-depth study of the venues, the researchers reviewed published technical papers presented in various workshops, seminars, and conferences.

Among the more important documents were the “Right to Information and Role of Libraries and Information Systems in Nepal,” by Dr. Madhusudan Karki, “Ten Years On: The State of Community Radio in Nepal,” (UNESCO, 2007), a Nepal National Library Report, “PPP Led ICT Enabled Services in Nepal,” (Economic Policy Network and ADB Nepal), and “Information Technology Policy 2004, Status of Community Libraries in Nepal: A Survey Report,” Dangol, 2003.

With the assistance of prominent stakeholders in Nepal, the study team compiled a list of the potential venues offering ICT services and the venues where access to information has been the primary objective. This preliminary list was further analyzed with regard to the scope of the research project to establish a final list of venues to be the focus of the study.

An effort was made to include venues offering digital ICTs, along with those venues where providing access to information played a significant role, and which were seen to have an opportunity to introduce digital ICTs into the services offered to the general public. The researchers also examined the physical accessibility of venues to see if they could realistically be called public access venues. A number of public libraries, community libraries, telecenters, and cybercafés were included as part of the study.

Other important means of disseminating public information dissemination, such as community radio broadcasts, university and special libraries, media centers, and community teashops, were excluded from the study based on the premise that they were not venues where the general public had physical access and were intended for a specific user group rather than the public at large. Some venues were excluded because they lacked any formal institutional mechanism.

OVERALL COUNTRY ASSESSMENT

Public information venues in Nepal are a culmination of community readiness, the interests of government, and the realization that information venues can greatly add to a user’s knowledge and quality of life. There are several different kinds of public information venues in Nepal and some are categorized as conventional while others are non-conventional. For the purposes of this study, conventional venues were defined as those venues that have some form of institutional support, while the non-conventional venues were defined as those that are not viewed precisely as public information venues. In this instance, the non-conventional venues still play an important role in helping the general public locate the information they seek.

For this study, the conventional venues included public libraries, community libraries, university libraries, telecenters, community radio broadcasts, and cybercafés. The non-conventional venues included the teashops and similar points where people commonly congregate for social or commercial purposes, such as shopping malls, restaurants, or a friend’s home. All the venues in general have been instrumental in imparting knowledge to the public. The conventional venues, in particular, have played a pivotal role, not only in informing people in the community, but also in empowering them.

The ICT infrastructure of the country, however, is not very dynamic. As of January 2008, and according to the Nepal Telecommunication Authority’s Quarterly Performance Indicator Report,⁶ there were about 5,24,443 fixed-line telephone subscribers, 2,500,124 mobile telephone subscribers, and 83,070 Internet subscribers. The report also stated that there were only 2.99 fixed lines per 100 inhabitants, 9.46 mobile cellular telephone subscribers per 100 inhabitants, and 0.31 Internet subscribers per 100 inhabitants. Landline telephone services are inadequate nationwide and are concentrated in cities and district headquarters. Mobile telephony has made a modest penetration

in most parts of the country with increased accessibility and affordability.

Access, Capacity, and Environment

The access, capacity, and environment status in the country is moderate to high. Most of the public access venues are accessible by the general public at large, are located in convenient places, and are affordable to most people. The available technologies and services are moderately appropriate in most venues, but are still inadequate to meet the overall need. In nearly all of the venues, locally relevant content is almost non-existent. Many venues present a somewhat cavalier approach to making services available to the impaired and physically challenged public. Although venues themselves do not openly discourage underserved groups, there is little visible effort to assimilate groups that might feel ostracized and unwelcome.

The technological capacity of the operators and users is average across the venues. Both the users and the operators have been able to use the services, although neither uses the applications anywhere near to their full capabilities. Even a little more training for the venue operators and librarians would add much to their levels of expertise.

Among the users who were interviewed, most indicated that they believe they have been able to integrate the services and the benefits of the services both into their homes and in their daily lives moderately well. Still, the social-appropriation aspect is missing in most of the venues, except in the case of the community libraries. The trust factor is thought to be moderately high among the user groups, and overall, the capacity level is about average.

Policies, Legal Environment, and Regulatory Framework

While the access and capacities with regard to public access venues may be questionable, the environment for providing access and training is

generally favorable. This favorable environment applies especially to the legal and regulatory framework, which is seen to be open and accepting with regard to public information venues. Similarly, the venues and the services they provide have the strong support of both the government's political will and the general public.

The policy and regulatory environment of the country is very favorable and presents a positive arena for the public information venues to expand, grow, and serve the communities at large. Among the more significant policies that affect delivery and access to information are the Right to Information Act, the Press and Publications Rights, the Telecommunications Policy of 2004, and the IT Policy of 2000.

The Right to Information Act states, "Every Nepali citizen has the right to demand and receive information on any matter of public importance, except legally provisioned things to keep secret and thereby to make public activities transparent and accountable."

As for the rights of the press and other publications, the regulations state, "No news item, article, or other reading material shall be censored; no press shall be closed or seized for printing any news item, article or other reading material and the registration of a newspaper or periodical shall not be canceled merely for publishing any news item, article or other reading material."

The official Telecommunications Policy of 2004 has created a favorable environment for private parties to participate in the telecommunication sector. The dynamics of the telecommunication sector have created many opportunities, and the Telecommunications Policy of 2004 was created to encourage the private sector to exploit the opportunities and future possibilities. The principal objective of the policy is to create a favorable environment in collaboration with the private sector to extend reliable and accessible telecommunications technologies to the public nationwide at a reasonable cost. Also, the policy

emphasizes that the results would strengthen the socio-economic situation in Nepal.

The IT Policy of 2000 encourages domestic and foreign investment for the development of ICTs and the related infrastructure, promotes e-strategies such as e-governance, e-commerce, and e-health, and emphasizes extending ICT services to rural areas for rural development. Additionally, the following related initiatives have begun to create a constructive policy environment.

- The Voice over Internet Protocol (VoIP) has been deregulated, although only for international operators
- The VSAT cost has been reduced substantially
- Wireless connectivity has been deregulated
- Rural ISPs can be registered for only Rs.100 (US\$1.50)
- Code Division Multiple Access (CDMA) is available in all 75 districts, which means that Internet connectivity is now available in all the districts
- Of the 3,995⁷ VDCs in Nepal, all but 200 to 300 have access to telephone service, and these are expected to have access in the near future
- The telephone ownership tax was reduced in 2007 from Rs.1500 (US\$21.70) to Rs.1000 (US\$14.50)

Inequities and Disadvantaged Groups

Social inequities in Nepal permeate nearly every aspect of daily life, and social discrimination is even more firmly entrenched in the less-developed areas, especially in the mid- and far-western regions, but caste-based discrimination continues to influence interpersonal behavior throughout the country. The researchers observed that the inequity variables that had the most direct influence on access to information were socio-economic

status, education, age, gender, venue location, caste/ethnicity, and religion.

Socio-economic status is an important limiting variable in determining equitable access to information. Individuals in the higher-income group are far more likely to pay membership fees for library subscriptions than the low-income group, and the study team recognized the strength of this phenomenon.

Education is an important factor that prevents much of the population from accessing information. A huge part of the population needs to be able to gain access to basic information on health care, employment, finances, agriculture, and weather.

Age is yet another inequity variable that impacts public access to information. To understand the value of information among all the age groups, it is important to gauge the pattern of usage of ICTs and information venues by different age groups so that the concept of equitable access can be introduced.

Gender is a crucial variable, and the social and cultural structures of the country are marked by long established inequities. The reality is especially apparent with regard to the social and cultural status of women. For example, the Nepali society in general discriminates against women, and, in particular, the discrimination is clearly expressed in certain laws. In most communities, a woman's position is governed by patriarchal traditions, and her place is generally considered to be in the home where her main duties include childrearing and household chores. A woman's access to education is limited and very few have opportunities to engage in activities that would provide them with a greater degree of economic or social freedom.

The physical location of a venue is an important variable that impacts accessibility. If the venue is not physically accessible, there is little the site can contribute to the community. Individuals living in urban areas have far greater access to information resources than their counterparts in rural areas. Consequently, there is a significant difference in

the way people access information and ICTs in the very different geographic locations.

People belonging to certain ethnic or indigenous groups are underprivileged and do not have equitable access to information and ICTs. From a national perspective, it is important to assess what opportunities exist to improve the lives of those underserved minorities by providing them with proper access to information and ICTs. In most respects, the same concept applies to the members of certain religious faiths, and an assessment of the impact of a user's religion, therefore, becomes relevant as well.

As far as caste is concerned, the people called Dalits (the "untouchables") are social outcasts and, therefore, are a major disadvantaged group. Even more so, based on ethnicity and race, the Janajatis are the most disadvantaged group. On a regional basis, the Parbatiya, or the Hill Dwellers, are the largest group, while the Madhesi, or the Plains Dwellers, are somewhat less disadvantaged than the Parbatiya. On the basis of religion, the Muslim community generally falls within the category of disadvantaged. On the basis of language, people who do not speak Nepali are the single most disadvantaged group.⁸

The State of Public Information in Nepal

The present means of disseminating public information in Nepal are clearly inefficient. Much of the entire population does not have access to the important information they need, while many more simply do not know that such information exists or don't realize how information could improve the quality of their lives. The overall condition is especially noticeable in the rural population and large numbers of rural dwellers remain unaware of such knowledge. Obviously, different groups have different information needs. For example, women have been allocated 33% of the seats in government offices, but hardly any woman in the nation is aware of this fact. Such information

regarding their empowerment should be relayed to them.

There is a strong need for the public to be able to access current and accurate information about issues such as health care, HIV/AIDS, human rights, the public's political voice, laws and legal issues, education, safe migration, life-skills training, weather, agriculture and markets, job opportunities, business opportunities, and financial concerns. The researchers noted that information about health and hygiene remains ignored in most parts of the country, and much of the population does not know how to combat diarrhea, typhoid, jaundice, or malaria effectively. Rarely is the ongoing issue of sexual exploitation even mentioned, and information regarding sexual trafficking should be freely extended to protect vulnerable young people.

Nepal has a very bleak economic environment, and it directly affects the extent to which information venues are used. In a nation where most of the population is living on the threshold of poverty, it would be too sanguine to expect them to use the venues on a regular basis. However, it can be hoped that the situation of such venues will improve, and with the greater empowerment of the people in the communities, that the use of such venues will increase as well.

Collaborative Practices Among Venues

Although not fully exploited, some forms of collaboration exist across the venues. Many libraries and telecenters have collaborated with other telecenters to provide broader services. Also, most of the telecenters have been established in schools where a library exists. Telecenters and cybercafés have sometimes collaborated to provide a wider range of services, and, in some places, private organizations have collaborated with NGOs. Others are also working as partners to establish more telecenters.

Community libraries have sometimes collaborated with telecenters, NGOs, DDCs/VDCs and other local clubs to extend their library services to the community. Similarly, some expatriate Nepalese also are collaborating with the NGOs in Nepal to provide support for establishing telecenters in the rural parts of the country. Some Internet service providers have collaborated with NGOs to work towards establishing telecenters, provide technical support, and work as partners in the entire project.

The information and communication venues have not been able to establish long-term or effective collaboration with government agencies, such as the Village Development Committees or the District Development Committees. However, if that could be accomplished, the dissemination of public information could be made more effective and would perhaps enhance the sustainability of the venues. Similarly, sustainable links and collaboration among community libraries, public libraries, and the telecenters could prove to be a major step in providing valuable information access to the public, especially for underserved communities and groups.

The collaboration among IT institutions, colleges, and universities would greatly benefit the development of information and communication venues and provide a wealth of technical support. Similarly, telecenters could adapt the cybercafés' business models to improve the sustainability of the telecenters, which has been a major concern for telecenters in Nepal.

Legitimate Use and the Information Landscape

The Nepalese public at large is rapidly realizing the importance of public information venues, and many venues have evolved into far more than just sources of online information and communications. Some venues have become social gathering places where users can meet other people with similar interests and discuss a wide variety of issues, ranging from politics to personal interests.

While analyzing the variety of uses in such venues, it is difficult to say what is legitimate and what is not. However, in the case of libraries, it can be said that by considering these venues as places to network might pose a challenge regarding the potential of the venue as an important information-sharing site. Similarly, illegitimate uses in cybercafés include accessing certain unacceptable sites, hacking computers, installing illegal software, and other such issues. This trend has stifled the innovation of some enthusiasts.

Shifting Media Landscape

In Nepal, the shifting media landscape is creating new opportunities with regards to public access venues, but little has been accomplished to date to explore or exploit those opportunities. For example, mobile telephony holds a huge potential for providing information to the underserved communities through Short Messaging Service (SMS) and Global Positioning Systems (GPS), which will be cost-effective and improve efficiency. Similarly, use of Web 2.0 tools to create blogs and wikis can contribute much towards establishing an informed public, but, so far, such applications are limited to urban centers, and, in some rare cases, in semi-urban centers as well.

One of the most remarkable shifts in the media landscape has come in the form of Community Multimedia Centers (CMC). CMCs are a combination of community radio broadcasts and telecenters, and are heavily promoted by UNESCO. In CMCs, community radio broadcasts take content from telecenters through the Internet and transmit it to vast numbers of people in the community.

The government of Nepal recently announced its intent to convert post offices to telecenters to permit the public to access various government services electronically. However, the initiative has not been implemented, but the concept is expected to make a significant contribution towards publicizing the value of ICTs to a large part of the population. Another example of combining

different media is the use of rural ISPs as a media center. Some rural ISPs are already engaged in radio and print media and act as a media center for the communities they serve.

VENUE ASSESSMENT

All the venues studied during this research have been instrumental to some degree in informing their respective community members about the issues that are most pressing to them. Whether it is a public library, a community library, a telecenter, or a cybercafé, each of these venues serves an important role in empowering the community. However, community libraries have been able to impart knowledge and empower communities to a far greater extent than the other venues. In addition, from a strategic stand point, telecenters have a huge potential to serve as remarkably valuable information and communication venues. They have the resources intact, which means a little more support from the government agencies and ministries would vastly improve the ability of the telecenters to aid the public at large. Also, telecenters could collaborate with cybercafés to learn much from their business model. Sustainability is a major concern of telecenters in Nepal, and collaboration could be especially beneficial to them.

Public Libraries

There are approximately one hundred⁹ public libraries in Nepal, but the exact number was not available to the researchers. From a historical perspective, the emergence of public libraries in Nepal was the extension of the public will from a very long time ago when many people, particularly the better-educated people, expressed a need for a place where they could house written records and information for protection and preservation. The view was that libraries could be an effective way to retain the wealth of information generated

by individuals over the years, and conserve it for posterity. With the passage of time, such libraries have become an indispensable part of society, but the condition of the libraries in Nepal at the present time is equivocal. In some places, the libraries have been successful in attracting significant numbers of readers, while in other places, libraries are on the verge of closure. Much of the problem stems from a very limited cultural heritage of reading, and this limitation continues among the present population. Flawed leadership at all levels exacerbates the problem.

Most of Nepal's public libraries are moderately accessible to the general public in terms of physical location, affordability, and the array of appropriate services and technologies, although, in most cases, the library infrastructure is inadequate to meet the needs of the population. Also, public libraries are seldom readily accessible in the rural and mountainous regions because of the poor conditions or the absence of a public transportation system in such areas. Similarly, most public libraries offer only the more conventional collections, such as newspapers, books, and periodicals, and only a few libraries offer ICT services, which further limits the scope of the services provided. Moreover, very few public libraries offer any locally relevant content, and the content that is available is either in English, Nepal, or Hindi languages, with little consideration given to content in local languages.

Public Libraries in Nepal do not regularly receive funds from the national government, although they receive some financial support from the local ministries, such as the District Development Committee (DDC) and District Education Office (DEO), but the amount of funding is not fixed. It depends heavily on the leadership of the individual management committees and the activities of the libraries. In some years, the government has provided funds directly to the public libraries. For example, in the fiscal year 2005-2006, the government provided 32 public libraries with a total of NRs 3,700,000 (US\$53,600), and the funds were channeled through the DEOs nationwide.

The Nepal National Library (NNL), which is a government-funded system of five libraries, and the Kaiser Library receive direct funding from the government.

Libraries such as the Pokhara Public Library (PPL) in Kaski district have transformed the way public libraries function. In 1995, the PPL became the first of the Regional Libraries to be affiliated with the Nepal National Library. It serves as a center for a Mobile Library Service to five local communities based on their schools and the BPEP Resource Centers. Under the signed memorandum of understanding between the American Center and the PPL in September 2003, a community information center was housed in the library. All the materials for the information center were provided by the American Center.

Community Libraries

Community libraries in Nepal seem to have had a profoundly favorable effect on much of the population, and are rapidly gaining popularity. The collective effect of the community libraries has become a significant resource supporting literacy, social change, and social empowerment. They have been instrumental in diminishing the isolation and vulnerability of marginalized groups and have improved communications in the remote villages where 90% of the population is isolated.

The demarcation between community libraries and public libraries has become obscured. For the purpose of this study, community libraries are defined as those venues that serve the people of a particular community and cater to their information needs. Under this definition, there are believed to be about 650 community libraries in Nepal.¹⁰

Community libraries also conduct outreach programs on issues such as reproductive health, employment, investment and financial training, vaccination drives, wall newspaper training and production, HIV/AIDS awareness, community meetings, peace building conferences, literacy classes, leadership training, and general health

care. For the Dalits (untouchables), community libraries have become one means of liberation.

Access to community libraries is open, and the majority of the community libraries are physically accessible, employ suitable technologies, and offer affordable services. The charges levied are also decided upon by the individual management committees according to the ability of the community members to pay. Most of the community libraries are located in venues where community members can easily walk to them in a few minutes. But in the case of public libraries, very few community libraries are accessible to physically challenged people, and the community libraries have done little to assimilate marginalized groups. Also, most community libraries are located in small facilities that make it difficult for a large number of users to access the venue at the same time.

CASE EXAMPLE: THE SANGAM COMMUNITY LIBRARY IN THE UDAYPUR DISTRICT

Organizations, such as Rural Education and Development (READ) Nepal, have been instrumental in helping and promoting the community libraries, having already established 46 community libraries. The Sangam Community Library in the Udaypur District is a successful example. Like all of the READ libraries, the Sangam Community Library contains more than just reading materials, and includes a dedicated children's section with books and a toy library filled with Montessori-like manipulative toys. The library also features a computer room with a printer, photocopier, and Internet access, and is preparing a computer training initiative through which the library aims to present free computer classes in the near future. In addition, the library has a room for meetings and conferences. The library has been instrumental in empowering the female members of the community. The Sangam Library has developed an innovative system of distributing books through

mobile libraries, and has announced a mission to provide books in every house, school, and local office in the community. So far, they have been proceeding successfully with the mission.

Telecenters

Telecenters in Nepal are still in a transitional and formative phase and many government, NGO, and private-sector organizations are trying to build an informed Nepal with the help of telecenters. Despite the effort, the situation is not very encouraging. Nevertheless, telecenters play an important role in most of the communities where they have been established. They are regarded as a valued source of information access for local communities, a center for strengthening communities, a place to increase productivity and income, a venue for capacity building and empowerment, and an opportunity for voicing needs and sharing solutions.

The community preparedness is seen to be very high, and telecenters have taken into consideration the need to include women and other underserved groups in their activities. Both the local and national environments are favorable, at least at the policy level. However, despite the interest that many stakeholders have shown toward telecenters, most of the venues have not been able to provide the services that many actually expected them to provide. For example, the distinction among telecenters, cybercafés, and computer institutes has become blurred because most of the telecenters are functioning like cybercafés and computer institutes.

Telecenters are commonly located in venues where the public can easily reach them, and the services offered are typically telephones, Internet access, printing, copying, and a limited amount of computer training. The charges levied for the services are generally affordable and are usually lower than those charged by their private sector counterparts. In most cases, the available technology is poor, and there is usually no locally

relevant content available, which casts doubt on the sustainability of the venues, especially in the rural and remote regions.

The telecenters in Nepal range from very small to larger scale, and the sponsoring organizations range from a small NGO to donor agencies such as USAID, UNDP, and government ministries. Because there is no definitive coordination or collaborative practice among these promoters, it is impossible to pinpoint the sources of funding for the telecenters. However, for the fiscal year 2006-2007, the government allocated NRs 3,500,000¹¹ (US\$50,725) specifically to establish telecenters.

CASE EXAMPLE: THE HALDIBARI TELECENTER IN THE JHAPA DISTRICT

When this study was conducted, it was believed that 240¹² telecenters existed, some of which have been quite successful in serving their communities. For example, the staff at the Haldibari Telecenter in Jhapa District creates digital stories about the Santhal Community (an indigenous community) and distributes those stories to the community. Similarly, the Rural Information Center in Durgapur in the Jhapa District, despite limited resources, has been providing computer training to the underserved members of the community at a minimal cost. The center also provides agricultural information to the community by listing market prices and other related agricultural information. The center operates without financial support from the government and manages on its own funds.

Cybercafés

Nepal has an estimated 5,000¹³ cybercafés, and they are readily found throughout all of the major cities. However, many of them are not registered, and in the absence of any designated authority to monitor and supervise them, they remain completely unsupervised. Furthermore, there are

no policy interventions to regulate them. Consequently, the cybercafés operate with complete freedom and are limited only by what they can afford. As a result, there is a growing concern with regard to the opportunities for cyber crimes.

Accessing information at cybercafés is easy and convenient, and anyone with a general knowledge of computers can access the Internet and search for information related to education, health care, agriculture, politics, entertainment, news, or any of a myriad of other subjects. Cybercafés do not impose restrictions of any kind that might impede public access to information.

Cybercafés are usually accessible to all segments of the population with regards to physical accessibility, affordability, services, and technologies, and they operate on a commercial business model as profit-oriented entities. Most of them charge affordable fees to make them attractive to a broad range of people. But as common as cybercafés are in the urban areas, they are very rarely found in the rural and remote regions, and the rural population has yet to benefit to any significant degree from the services of a cybercafé.

In addition to acting as Internet browsing centers, cybercafés also typically offer photocopy services, telephone services, and other related services to make them attractive to large segments of the population. It was noted by many respondents that if the cybercafés would add an information-dissemination feature to their suite of services, they would actually meet the accepted definition a public information venue.

Case Example: The Buzz Cybercafé in Surkhet

Cybercafés in Nepal are not seen as venues for disseminating information to the general public, although a few cybercafés are making an effort to do so. For example, the operator of a cybercafé in Surkhet called, The Buzz, collects locally relevant information and makes it available to the public through his cybercafé.

SUCCESS FACTORS AND RECOMMENDATIONS

Success Factors

In the course of conducting this study, the researchers identified the following five points as key success factors affecting the public access to information and communication in Nepal:

- **Community preparedness:** To a great extent, Nepalese communities are prepared to consider and adopt new technologies and practices to improve their access to information. However, a stronger effort should be made to provide appropriate needs-based technologies and locally relevant content.
- **Conducive policy environment:** Although a number of implementation issues exist, Nepal has a favorable policy environment with regards to public access to information and communication venues, both at the national and local levels. Conducive policies and regulations are in place to support increased public access to information and communication venues along with newer forms of digital ICTs.
- **Interest from Multiple Sectors:** There is strong interest amongst the government entities, NGOs, donor agencies, and the private sector to support public access to information and communication venues and digital ICTs. This interest can be converted into functional initiatives if appropriate plans and programs can be developed and implemented.
- **Partnering with other initiatives:** There are many organizations working on the issues that affect underserved communities and groups. If these kinds of initiatives are connected in a formal structure with the programs designed to improve public access to needs-based information and communi-

cation, the result can deliver an enormous benefit to the underserved communities.

- Successful models: There are innovative operational business models for the sustainable operation of public information and communication venues in Nepal. These models have evolved gradually, have proved their value, and can be replicated in other parts of the country.

RECOMMENDATIONS

The following recommendations summarize key public access issues that need to be resolved:

- Collaboration and networking among the several types of venues; the relevant stakeholders and participants could benefit from learning from each other and avoid duplicated effort.
- The central and local governmental ministries, entities, and agencies should formally establish public access to information and communication venues as integral parts of their service-delivery mechanism.
- The sustainability of venues needs to be planned at a broader level and should not be made the responsibility of the individual venues.
- Public access venues need to be integrated with other ongoing successful development initiatives in the country.
- Venues such as telecenters, cybercafés, community libraries, public libraries, community radio and television broadcasters, and other similar venues (with or without ICTs) should be viewed and supported as integral parts and key contributors in shaping a comprehensive information-based society.

CONCLUSION

Information access in Nepal is centralized around the capital city of Kathmandu, and access to information in other areas, especially the rural areas, is difficult. Public access venues do not exist in much of the country. Nepal's geography contributes to limiting access, and the effect is seen in the urban/rural differences in access to ICT services. Because of the geographic variations in Nepal, people in remote and complex terrains do not have ready access to modern technologies that can improve socio-economic development. In some cases, remote regions lack public access to ICTs because of the geographic conditions. Overall, Nepal has a limited ICT infrastructure. Landline telephone services are inadequate nationwide and are concentrated in cities and district headquarters, but mobile telephony is established in most of the country.

In Nepal, discrimination based on caste, class, and gender heavily influence access to information and ICTs. Discrimination is more entrenched in the country's less-developed areas, especially in the mid-western and far-western regions, but caste continues to influence interpersonal behavior throughout the country. The underserved groups have been assimilated in some venues, but much improvement is needed and culturally accepted to make information accessible to all.

Most of the public access venues that exist in Nepal are open to the general public, are located in convenient places, and are affordable to most people. The technologies and services are moderately appropriate in most venues, but they need to be updated and expanded. Venue operators often are nonchalant when it comes to making services available to physically and visually impaired people. Although venue operators and staff do not actively discourage use by underserved people, little effort is made to assimilate them.

The technological capacity within most public venues generally is serviceable and has been able to serve both the operators and the average users

moderately well. However, capacity building and ICT training are needed, and there is an urgent need to provide the development to the operators and librarians. There is very little locally relevant content in any of the venues.

In general, people who use the venue services, even on an irregular basis, were believed to understand the value offered by ICTs. Overall, a minimally serviceable technological landscape is in place, and much of the population has learned how to take advantage of the benefits and apply them on a day-to-day basis within their households. However, except for community libraries, the social appropriation aspect is missing in most of the venues. Private information venues, such as cybercafés, are on the rise and provide immediate access to information.

Government policies are only beginning to encourage investment in ICTs and have had little significant impact. The government has been unstable in recent years, and information is not readily provided to the public. Freedom of the press is effectively curtailed, and civil liberties have eroded during recent government turmoil, but the political scenario appears to be slowly improving.

Most of the public perceives access to information and ICTs to be important to some degree, but training and capacity building are urgent needs. Several initiatives have been undertaken to decrease this capacity gap, and the telecenter movement is an excellent example. The success or failure of these initiatives depends heavily on the support from the government.

It was difficult to find appropriate, accurate, and reliable data related to the various venues, and even when data and supporting information were available, they were scattered and disorganized. Often, the research team had to rely on opinion and approximation even to quantify the number of each venue type in the country. Still, it is believed by the researchers that the research was instrumental in setting a baseline for the public access scenario in Nepal.

Although some of the research findings are simple validations of general observations, the research has revealed that community preparedness is relatively high for digital technologies such as computers and the Internet. The communities in rural areas appear to place a higher value on the public access venues than their counterparts in urban areas. It was also interesting to see that there are different successful models of public access to information and communication venues operating at the community level.

Although this research was not an exhaustive survey of venues across the country, it offers a general picture of public access venues in Nepal. Further studies of the public access landscape are highly recommended.

ENDNOTES

- ¹ He was the ninth generation descendent of Dravya Shah and was responsible for the formation of the Kingdom of Nepal.
- ² Interim Constitution of Nepal, Article 5, point 2.
- ³ Gender, Institutions and Development Database http://www.wikigender.org/wiki/index.php?title=Gender_Equality_in_Nepal, last accessed on August 16, 2008
- ⁴ Central Bureau of Statistics, Ramshah Path, Kathmandu, Nepal: Statistical Pocket Book Nepal, 2002
- ⁵ <http://www.nepaldalitinfo.20m.com>, last accessed on August 10, 2008
- ⁶ For the entire report http://www.nta.gov.np/Quarterly_Performance_of_Telecom_Operators.html
- ⁷ <http://www.hrw.org/about/projects/womrep/General-141.htm>, last accessed on August 14, 2008
- ⁸ Based on an interview with Mr. Chakraman Vishwakarma, General Secretary, Dalit Welfare Organization

⁹ Approximation based on expert interviews and Focus Group Discussion

¹⁰ Approximation based on expert interviews and Focus Group Discussion

¹¹ http://www.hlcit.gov.np/report/Progress%20of%202063_2064.pdf (the report is in Nepali-the figures have been derived by adding up the figures from 4th row-6th

Column and 13th row-6th Column- NRs. 2,800,000 and NRs. 700,000 respectively)

¹² Extracted from <http://www.mgovworld.org/PractitionerViewPoint/saroj-devkota>, last accessed on September 26, 2008

¹³ Approximated figure based on consultation with different stakeholders.

Chapter 21

Public Access ICT in Philippines

IDEACORP
Philippines

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EXECUTIVE SUMMARY

The Republic of the Philippines is composed of 7,107 islands in the western Pacific region of Southeast Asia and is surrounded by the Philippine Sea, the South China Sea, and the Celebes Sea. The United States gained control of the Philippine Islands following the Spanish American War in the late 1890s and granted the Philippines independence in 1946.

With a land area of 300,000 sq km and a population estimated at 90 million, the country is the world's 12th most populous nation. Half of that total population lives on Luzon Island. The landscape is mountainous and covered by tropical rainforest, and the economy rests heavily on agriculture, although there is some mining and light industry.

Political, social, and economic issues have created a deeply marginalized society, largely the result of the unequal distribution of wealth. Corruption is commonly described as rampant. The resulting combination of these factors has

affected information access on multiple levels. The conditions that marginalize communities and groups are attributed primarily to: 1) the weak macro-economic management, 2) employment issues, 3) high population growth rates, 4) an under-performing agricultural sector and an unfinished land reform agenda 5) governance issues, including corruption and a weak state, 6) conflict and security issues, and 7) people with impairments and disabilities.

English and Filipino are the official languages, but an astonishing 180 other languages are recognized and spoken. Education is compulsory and taught in English in a school system patterned after the American model. From an educational viewpoint, the literacy rate is 92.6%. The government officially recognizes 14 regional and tribal ethnic distinctions with minor segments that have North American, European, Asian, and Middle Eastern origins.

The underserved population includes the urban poor, women, children, the elderly, indigenous people, informal workers who have no social services or health insurance, peasant farmers, fishermen, persons with impairments and disabilities,

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victims of disaster, formal labor and migrant workers, and students and young people. Collectively, these social issues limit public access to ICTs, and the nation was selected to participate in this study because of the value that access to ICTs can bring to the country. The study was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. It assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes. The study placed an emphasis on the information needs of underserved and remote communities and groups.

In general, the underserved and marginalized population in the country needs information on basic human needs and fundamental social services. Although the Philippine government has fostered an enabling policy and regulatory environment for ICTs and development through various international and national policies, the implementation of these policies can be improved.

This study focused on the access to information by the underserved and marginalized population in the Philippines, particularly through ICTs. It examined the policy-making conditions in the country, including projects and programs that aim to make ICTs more accessible to the population. The study also reviewed the status of ICTs to identify the information needs of the country, and to offer recommendations for improving the implementation of programs and services related to ICT development and accessibility.

To study the information needs, the public access venues were reviewed to identify the most accessible and prevalent ICT sources available to the marginalized and underserved people. The researchers selected public libraries, government-funded Community e-Centers (CeCs), and privately owned cybercafés, and then identified the specific venues to be examined during the study.

The venues were examined to establish accessibility, physical infrastructure, and human

resources. The researchers considered information content and service-usage patterns, communication and knowledge production, and relevant environmental factors that included governmental policies, geography, ethnic and linguistic differences, and inequity variables. The research methods included interviews, surveys, field observations, and site visits.

The venues were found to be generally affordable and accessible to users. In public libraries, information barriers include obsolete and small collections, as well as the absence of Internet access. In CeCs and cybercafés, users who were interviewed identified limited services, slow Internet access, and limited workspace as the primary information barriers. Public libraries and cybercafés are accessed more frequently than CeCs, which are relatively new government-sponsored information sites. If the identified information barriers are addressed, these public access venues can be important information and education sources for the underserved and marginalized communities and groups.

Further research is highly recommended, especially to examine methods for sustaining CeCs and mechanisms for monitoring the development of public access venues. There is a need to standardize and coordinate policies, programs, regulatory controls, and initiatives to ensure optimum use of these venues.

COUNTRY OVERVIEW

Introduction

The Republic of the Philippines is a developing nation composed of 7,107 islands in the western Pacific region of Southeast Asia and is surrounded by the Philippine Sea, the South China Sea, and the Celebes Sea. With a land area of 300,000 sq km and a population estimated to be 90 million, the country is the world's 12th most populous nation. Half of that total population lives on Luzon

Island. The overall landscape is mountainous and covered by tropical rainforest, and the economy rests heavily on agriculture, although there is some mining and light industry. The GDP was US\$154 billion in 2008. Manila is the capital city, and the nation functions under a presidential unitary government.

The island group that has become the Philippine nation was a Spanish colony from the 16th century until the United States gained control following the Spanish American War in the late 1890s. The United States subsequently granted the Philippines full independence in 1946. Since then, the country has seen extensive political, social, and economic turbulence.

More than 90% of the population is Roman Catholic but there is a significant Islamic presence. The government officially recognizes 14 regional and tribal ethnic distinctions with minor segments that have North American, European, Asian, and Middle Eastern origins.

English and Filipino are the official languages, but an astonishing 180 additional languages are recognized and spoken. Education is compulsory and taught in the English language in a school system patterned after the American model. From an educational viewpoint, the literacy rate (92.6%) and educational development are roughly equal between genders.

Political, social, and economic issues have created a deeply marginalized society due to the unequal distribution of wealth. Corruption is commonly described as rampant. The resulting combination of these issues has affected information access on multiple levels. The conditions that characterize the nation are deeply ingrained in the general population and appear as sharp distinctions among the social classes. The cumulative effect has been the creation of large marginalized communities and groups who live under a set of severe inequities attributed primarily to: 1) weak macro-economic management, 2) employment issues, 3) high population growth rates, 4) an under-performing agricultural sector and an

unfinished land reform agenda, 5) governance issues, including corruption and a weak state, 6) conflict and security issues, and 7) the absence of adequate political and social concern for people with impairments and disabilities.

Geographically, the most underserved and marginalized areas are located on the Mindanao and the Visayas Islands, and are a reflection of the country's weak economy and political instability. Generally, the underserved and marginalized population needs information on basic human needs and social services. But while the government has fostered an enabling policy-making and regulatory environment for developing information and communication technologies (ICTs) through various international and national policies, the implementation of these policies is lacking.

The underserved population includes the urban poor, women, children, the elderly, indigenous people, informal workers who have no social services or health insurance, peasant farmers, fishermen, persons with impairments and disabilities, victims of disaster, formal labor and migrant workers, and students and young people.

Collectively, these issues impose strong barriers, limit public access to ICTs, and have led to the nation being selected to participate in this study, especially because of the value that access to ICTs can bring to the country. The study was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. It assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes. The study placed an emphasis on the information needs of underserved and remote communities and groups.

METHODOLOGY

The research for the study began with an exhaustive literature review, including academic docu-

ments about ICTs, inequities in venues, statistical information, and reports about specific projects related to each venue. The researchers identified the information sources that people use, and then selected those that were open to the public and widely distributed.

Three such venue types were identified as the most accessible and prevalent venues available to marginalized and underserved people: public libraries, government-funded Community e-Centers (CeCs), and privately owned cybercafés. The venues are reasonably affordable and accessible. In public libraries, information barriers include obsolete collections, a limited number of references, and the near total absence of Internet access.

In CeCs and Internet cafés, users said that the primary barriers were limited services, slow Internet access, and limited workspace. Public libraries and cybercafés are accessed more frequently than CeCs, which are relatively new government-sponsored information venues. If the identified information barriers can be suitably addressed, these public access venues can become information and education hubs for the underserved and marginalized population.

The venue selection was based on accessibility, physical infrastructure, human resources, information content and service-usage patterns, communication and knowledge production, and relevant environmental factors, such as governmental policies, geography, and ethnic and linguistic differences. The research methods included interviews, surveys, field observations, and site visits.

Ms. Maria Juanita M. Macapagal was selected to be the project manager for the research study in the Philippines. She is an Ideacorp fellow with more than 15 years of experience in development consulting, and has a Master of Science degree in sociology. Ms. Mina C. Peralta was the program associate for the team. She is a candidate for a Master's degree in communications research at the University of the Philippines-Diliman. Ms. Mae Elizabeth Lungay processed the survey data

and has a Master of Science degree in applied mathematics. The field researchers included Ms. Claudine Atienza, who is a candidate for a Master's degree in psychology at the Batangas State University, and Ms. Emynita Tapiru, a community-development professional based in Region II.

The research team used secondary data for the country assessment, and most of the secondary information was culled from online and published sources.¹ The sources included:

- National Economic Development Authority (NEDA), www.neda.gov.ph (2005)
- "Medium Term Philippine Development Plan 2004-2010," Pasig City, Philippines
- "ICT Roadmap," Commission on Information, Communications, and Technology (2006), CICT, Philippines
- "National Library of the Philippines 2006 Annual Report," National Library of the Philippines, (2006), Manila, Philippines
- "The Community eCenters' Roadmap 2007 – 2010," CICT (2007)
- "The Second Knowledge Exchange Conference of the Community eCenters Final Report: Forging the CeC Directions and Building the CeC Network," Development Academy of the Philippines, CICT, and the National Computer Center, Quezon City, Philippines, (2007)
- "Towards Universal Internet Access in the Philippines," Emmanuel Lallana, PhD and Cheryll Ruth Soriano (2007); a draft paper presented during the Universal Internet Access Study Group Meeting, June 26, 2007, Crowne Plaza Galleria Manila, Ortigas, Philippines
- "SMS Business and Government in the Philippines," Emmanuel Lallana, PhD (2006), Quezon City, Philippines
- "What Determines ICT Access in the Philippines," Erwin Gaspar Alampay (2007), cited in "Bridging the Information

Divide: A Philippine Guidebook on ICTs for Development,” International Development Research Center (IDRC)

- “Building Information Societies: Digital Review of Asia Pacific 2005/2006,” cited from chapter on the Philippines, Emmanuel Lallana, PhD (2007)
- “People’s Communications for Development,” ISIS International – Manila, Chapters 7 – 11, November 2007

The researchers identified and examined these three public access venue types:

- Public libraries: each administrative division is required by law to have a public library. In terms of access to ICT services, the implementation of the e-library Project was useful in identifying the actual ICT usage by the public in these libraries
- CeCs: the installation of CeCs nationwide is a project supported by the national and local government units (LGUs)
- Cybercafés: compared to CeCs, the cybercafés are privately owned and are easier to establish. Cybercafés also are easier to access than CeCs.

The three venue types were selected because they are the most often used sites where information, whether digital or not, are accessed by the public. The different thrusts of these venues also make for wider coverage of ICTs and serve the varied needs of the users.

Several other possible venues were considered, but were excluded from the study. They included the programs called Gearing Up Internet Literacy and Access for Students (GILAS), the Growth with Equity in Mindanao (GEM), and the Computer Literacy and Internet Connection (CLIC) program. These were excluded because they are ICT access points that target selected schools in specific areas and are inaccessible to non-students.

The four most important inequity variables that affect access to public information are socio-economic status, educational level, age, gender, and venue location. Socio-economic status was examined as a way to ensure that the lower- and middle-class populations were sufficiently represented in the study, while educational level, age, and venue location were more closely concerned with the issue of ICT access. Gender as a variable was not considered to be quite as important in this study.

While considering the location variable, the researchers found the National Statistics Office’s (NSO) definitions of urban and rural areas to be problematic. But, the underserved sites the research team visited are “urban” areas under the NSO definition.

To collect data for the study, the team conducted interviews, focus groups, site visits, and surveys. Purposive sampling was used to identify the sites, and the study team considered poverty incidence, equal representation of the regions of the Philippines, ease of transportation, public access to ICT programs implemented by the LGU, weather conditions, and regional peace and civil order.

There were 48 key informants interviewed during the study. The sample included librarians, IT practitioners, government officials, personnel of the National Library of the Philippines, staff members of the public libraries at the local level, the CICT and CeC proponents, and the Department of Trade and Industry (DTI).

The site visits covered seven public libraries, 11 CeCs, 17 cybercafés, and three other sites. The team visited sites on Luzon and Mindanao and in the following provinces and communities: Batangas (Region IV-a), Pampanga (Region III), Upi, Shariff Kabunsuan (the Autonomous Region of Muslim Mindanao, or ARMM), Tacurong City, Sultan Kudarat (Region XII), Bayombong, Nueva Vizcaya (Region II), Legazpi City, Albay (Region V), the Cities of Bacolod, Escalante, and Sagay in Negros Occidental (Region VI), the Cities of Cebu, Mandaue, and Lapulapu in Cebu (Region

VII), Tacloban City and the Tanauan municipality in Leyte (Region VIII), and Zamboanga City (Region IX).

The choice of the provinces was based on proximity (adjacent cities) to maximize time, the areas where most of the underserved are located, where there were resources, and according to the availability of the personnel at each site.

A questionnaire was randomly distributed to users in the selected venues. The revised questionnaire covered standard questions (frequency of visit in a particular venue, type of information sought, ICT activities, barriers in accessing information in the venue, etc.), as well as a satisfaction rating for that particular venue and suggestions for improvement. Because the survey was conducted during the summer vacation period, high school students were less-well represented, and the bulk of the survey respondents were Internet café users.

OVERALL COUNTRY ASSESSMENT

Access, Capacity, and Environment

In general, the physical locations of the public information venues are reasonably accessible for most people. However, topographical limitations often prevent residents living in remote areas from accessing information venues.

Although most venues are equipped with appropriate ICTs to connect to the Internet, most of the population still seems to prefer to access information through mobile phones, radio, and television. The services offered in the venues are affordable to most people. Government-provided services are subsidized, while competition among Internet cafés has led to low-cost services.

Most users in public access venues are students who are usually technologically literate with regard to ICT use. For users who are not ICT literate, staff members at the venues are usually able to help them navigate the Internet. Moreover, given that student users belong to the younger sector of

society, it has been easier for them to integrate ICTs into their daily routines when compared to the older population.

Most of the information accessed on the Internet is in English, and almost no relevant information is available in any of the local languages. There is little appreciation for information written in any of the local languages, and there is little demand for it to be produced.

The telecommunications (telco) industry is the primary ICT service provider in the Philippines. Telcos are deregulated in the Philippines, and the government, through its concerned agencies (CICT, NTC, and DOTC), has tried to foster an enabling competitive environment among companies in the industry. The government is also a signatory in ICT-related agreements proposed by international organizations, such as ASEAN and APEC, which support the ICT-enabling environment.

Despite the government's outward attempts to create an enabling environment, there is still a need to encourage greater government effort toward ICT development. The creation of a Department of ICT is still pending in both houses of congress, and the planning and implementation of ICT-related projects and programs remains disorganized. As a result, there is a lack of public support for the government's ICT-related programs.

Inequity Environment

The most important inequity variables are poverty, gender, age, and education.

In 2000, the NSO reported that in the 15 years after 1985, the number of Filipinos living below the poverty line had increased by more than four million. The MTPDP 2004 – 2010 (NEDA, 2005) reported that rural poverty in 2000 (47% of all rural families) was much higher than urban poverty (18.6%). Mindanao Island, where social unrest and armed conflict are ongoing issues, has the most regions with high poverty rates.

Women comprise about 49.6% of the population, and according to the National Commission on the Role of Filipino Women (NCRFW), women fare slightly better than men in terms of education and training.

When age is viewed with regard to inequities, some astonishing statistics emerge. According to the 2000 NSO report, approximately four million Filipino children between one and five years old were claimed to be economically active, and 70% of them live in rural areas. Elderly people comprise 7.1% of the total population.

In the 2006-2007 school year, the Department of Education reported a total enrolment of 19.25 million children, a decrease from the previous school year. The decrease was attributed essentially to increasing poverty and the rising cost of education.

When the public-access-venue survey was conducted, the results revealed that male and female users were equally distributed with regard to public libraries and CeCs. In contrast, the majority of the respondents in the Internet cafés were male. Most of the users in public libraries, Internet cafés, and other venues are 25 years old or younger, while most of the CeC users are 26 to 45 years old. Among all of the users surveyed, 54.77% were in the low-income class, 37.50% were in the middle-income class, and 7.72% are in the high-income class.

Information Needs of Underserved Communities

The most important and current sources of public information for the Filipino people are government agencies, mass media, educational institutions, religious venues, and NGOs. Despite the presence of these sources, the underserved communities in the country need greater access and, primarily, specific information about available social services and issues, especially given that they are located in areas that are socially and physically isolated. This segment of the population lacks informa-

tion about family planning, childcare, nutrition, sanitation, employment and productivity, market and trade opportunities, education and training, and government services.

Underserved communities have urgent information needs about human resources, socio-demographic data, clinics and health facilities, health care programs, education, information on government and NGO services, training modules, and research materials. There is little available information on how to improve their sources of livelihood, even for such fundamental employment as farming and fishing. Underserved communities also need current information about economic and weather conditions.²

Based on the survey results, the five single most sought-after subjects accessed by users in public libraries and Internet cafés are education, news, entertainment, government services and health. Similarly, the five most sought-after subjects accessed by users in CeCs and other venues are education, entertainment, personal, government services, and news.

Twenty two percent of all users surveyed said that public access venues lack sufficient services, and 17% said the cost of the services was an important barrier to information access. Twelve percent said that the content was inadequate to meet the need.

Unexpectedly, only 63% of the respondents use the venues to access information related to education, despite the fact that the venues are so often located near educational institutions. ICTs are used primarily to address personal concerns (74.6%), e-mail, and chat sites. Entertainment was ranked second at 67.6%.

Economic Policy and the Regulatory Environment

The successive governments of the Philippines from 1986, following the People Power Revolution that ended the Marcos dictatorship, have attached a high priority to reducing poverty. At

best, some of the governments had moderate success in reducing the overall level of poverty, and others experienced an outright failure in reducing the number of poor Filipinos. While each administration has undertaken various types of efforts to alleviate poverty, none were able to sustain the gains. With each new President, there was a tendency to discard old programs and launch new programs. Each one resulted in duplicated efforts, wasted resources, and a continued state of transition (ADB, 2005).

The ADB poverty study (Schelzig, 2005) identified major causes of poverty in the Philippines and, as had been seen so many times previously, the focus once again highlighted: 1) the weak macro-economic management, 2) employment issues, 3) high population growth rates, 4) an under-performing agricultural sector and an unfinished land reform agenda, 5) governance issues including corruption and a weak state, 6) conflict and security issues, and 7) the absence of adequate political and social concern for people with impairments and disabilities.

Collaborative Practices and Opportunities Across Venues

The researchers for this current study concluded that collaborative practices in the Philippines can be categorized in broad terms to include national government and local government collaboration, government and donor collaboration, government and business collaboration, government and citizen/civil society collaboration, and business and citizen collaboration.

The Philippine e-library Project is cited as an example of collaboration between the national government and LGUs. The project features an online public access catalog system and library management system linking the various libraries in the country. Other collaborative examples include the Farmers' Information and Technology Services Centers (FITS Centers) and the Last Mile Initiative.

The government and the private business sector collaborate in several ways. The partnerships with Intel Microelectronics Philippines, Inc., is one example. Another example is the eProcurement Program of the Department of Budget and Management (DBM) that was developed in partnership with the Ayala Systems Technologies, Inc. (ASTI), a local business organization in the Philippines, and the Canadian International Development Agency (DBM/PS, 2005).

There are many collaborative efforts between the government and the private sector through SMS. An example is the SMS service of the Civil Service Commission (CSC) called TXT CSC, which is intended to provide information and respond to citizen complaints. The service was successful because of the quick receipt of information and the quick response of the agencies. Each of the cellular-service providers also provided three service lines to support the service. This service was extended to the office of the president through the TXTGMA (Text Gloria Macapagal Arroyo); the cost is only Php 1.00 per message to send text messages to the government.

Government agency, donor organization, and civil society collaborations include the Maguinda Multi-Purpose Community Telecenter, an LGU-based CeC. The partnership was formed among the Maguinda barangay officials, International Development Research Center (IDRC-Canada), the NGOs Molave Foundation, and the Knights of Rizal.

Another example is "Buddyworks," a three-year telehealth pilot project launched in August 2005 by the University of the Philippines - Manila and the Philippine General Hospital. The aim was to provide support and assistance to staff members of the rural health units of the Municipal Health Offices, which are typically challenged by the lack of doctors and health staff.

Legitimate Use

Access to information in public libraries connected to the e-library is limited to educational subjects. The chief librarian and the IT staff (if present) establish the ICT access restrictions based on their perception of what constitutes legitimate use and what they believe might be distracting to a student's academic environment.

The CeCs prohibit installing and playing online games and downloading applications. Although access to casual information is allowed, the access duration is still monitored by the administrators to allow equitable use of the venue's equipment.

In Internet cafés, the staff only monitors the time consumed while accessing the ICT services. However, most Internet cafés do not allow users to install applications, but permit the use of pre-installed gaming, word processing, spreadsheet, and instant messaging applications. Internet cafés are perceived to be socially attractive, or "cool," places for teenage boys to gather and play the latest online games with their peers.

Shifting Media Landscape

LGUs all over the country are developing websites that feature information on tourism and events. The province of Upi uses ICTs and the media to promote government transparency and tourism. There is a radio program where listeners can text questions to the mayor, while another radio station can broadcast through the Internet. Also, the CeC in San Remigio, Cebu, began offering VoIP (Voice over Internet Protocol) service in 2006 for easier access to the LGU.

VENUE ASSESSMENT

Public Libraries

Public libraries are usually located in provincial capitals or in city or municipal centers and are

generally accessible to the community. The existing bookmobile program of the National Library of the Philippines carries books, multimedia tools, and references to underserved areas three times a week. An initiative called the eLib, where materials are accessed through the Internet, is another measure undertaken by the National Library to address the limited number of materials in most libraries.

The fees for library services, including Internet access, are minimal. Library services are free once a user has paid a minimum annual fee of about Php 25.00 (about fifty US cents). The overdue book fine costs Php 2.00 per day. Internet use is free.

In 1994, the government enacted the Republic Act 7743, or the "Act Providing for the Establishment of Congressional, City, Municipal, and Barangay Reading Centers throughout the Philippines." The law mandates the National Library to establish libraries in cooperation with LGUs and other government agencies within a period of five years. Had the law been enforced (except for the provincial library), there should have been about 43,874 public libraries nationwide by 2007; the records show that only 1,156 libraries have actually been established.

The creation of public libraries is largely dependent on the availability of budget in the LGUs. Funding for the venues varies and cannot be clearly identified because it depends on what is provided by the respective LGUs. For example, the Sultan Kudarat Provincial Library, a small public library that can accommodate fifty people, operates under the office of the vice president. The library is given Php 2,000 each month to acquire reading materials.

The human capacity among the staff at public libraries generally is adequate, and although there is a lack of licensed librarians, the staff members address this limitation by taking library science courses.

The provincial and city libraries are considered medium sized and usually have 18 to 20 personnel, with one to three of them being professional

librarians. Municipal and barangay libraries are small libraries and usually have one shared professional librarian, a couple of aides and a maintenance person. In some cases, such as in the Sultran Kudarat Library, the librarian, a public administration graduate, is the sole library staff. Other government staff members are encouraged to help the librarian during their free time.

A public library is easily integrated into a user's daily routine. Most users, typically students, teachers, and researchers, need to perform their academic work, and, therefore, they find time to go to the library. Of the public library users surveyed, 72.2% said they were satisfied with the services offered by the library, but access to information is limited exclusively to academic subjects.

Many public libraries still do not have access to ICT services because of the lack of budget, absence of connectivity, or even the absence of electricity. The e-library program, for example, poses some problems because some of the services are not free. It was only in 2007 that the Sultan Kudarat Library had access to the e-library.

Community e-Centers

The CeCs in the Philippines have been organized into a network association, the Philippine Community e-Center Network (Philcecnet). As of 2007, there were 741 CeCs in the Philippines, and all are designed to provide digital ICT services to the constituents of the LGU where they are located. Each CeC offers basic services, including Internet access, word processing, spreadsheets, printing, and other related services, but they do not permit gaming.

Each CeC is located within the local government compound and is readily accessible. While most CeCs offer free services, there are some that charge about Php 20.00. Most CeCs are frequented by students as an alternative to the Internet cafés in the area, and survey results show that half of the users who visit the sites daily are less than 26 years old.

On October 22, 2002, the municipality of Upi, Sharif Kabunsuan, was the first municipality in Mindanao to launch a CeC. The CeC Internet connections are provided by Globequest and costs the LGU Php 15,000 each month.

The establishment of the CeC in the municipality of Upi has prompted the government offices in the area to incorporate computers and ICTs in their services, and launched the LGU website. The website allows the officials to retrieve forms used for permits, and publish municipal plans, accomplishment reports, and local ordinances. Inquiries can also be made through the website. As a result of the success of the initiative, ICT development efforts also have been launched, and the municipality now has an ICT council, and a policymaking body staffed by school principals, student representatives, and other young people. The CVISNET provides business plan training for the council.

The Municipal Systems Information Analyst under the Office of Municipal Planning and Development manages the CeC in Upi. In general, the two to three staff members who are tasked to initiate CeCs in the country are considered adequate, but the managers are not graduates of ICT-related courses. Only the CeC in Tanauan provided Internet training for the local government staff, barangay officials, and others.

The budget for supporting CeCs in their first year of operation was not disclosed to the researchers. However, based on the eGovernment Fund report, the amounts for the project budgets allocated for the CeCs covered under the NCC, the CICT, and TelOf during the 2005 – 2006 funding year are as follows:

- CICT/NCC Project – Php 95.918 million for 54 CeC sites
- CICT/LGU/School-Based CeCs – Php 200 million for 226 LGUs
- Government Sources – eGovernment Fund Php 295.918 million for eGovernment-Funded Projects

- International Sources – USAID (undisclosed)

The sustainability of most CeCs is in the hands of the local government officials. But because of the high cost of maintaining the equipment, it might be prudent in the long run for CeCs to be run as profit-oriented commercial businesses to assure their sustainability.

Internet Cafés

Most Internet cafés are small-to-medium enterprises, and are usually very accessible. Typically, they are located in or near the town center, and in the larger urban communities, it is not unusual to find three to five cafés lined up along many of the streets in urban areas. Eighty three percent of the Internet cafés are located in urban areas, while the remaining 17% are in rural areas.

Commonly, two to three persons can operate an Internet café. Some Internet cafés, as in the case of one located in Imus, Cavite, have owners or operators who are computer enthusiasts, or who are academically trained in ICT-related studies. Most of the staff at Internet cafés is adept at tutoring people who are unfamiliar with computers or the Internet.

Because of the large number of Internet cafés and the fierce competition among them, the services they provide are affordable. The customers are charged an hourly rate, and the average fee ranges from Php 20 to Php 30 per hour. Printing, photocopying, document scanning, and other similar services are subject to an additional charge.

The Internet cafés cater to students, relatives of migrant workers, professionals, and employees of nearby businesses. Students usually access the Internet and play games or update their blogs after classes, while others go to Internet cafés after working hours. Of the users who visit Internet cafés daily, 60.7% are under 26 years of age and an overwhelming majority of them (94.6%) are male users who use the gaming services. Unlike

the results for CeCs, only a few of the Internet café clients use the site to access news (9.4%). The survey results indicate that a great majority of users (84.4%) visit Internet cafés for entertainment purposes.

Apart from the usual Internet services, the E-biz Internet café in Gubat, Sorsogon, offers a quiet workplace environment in sharp contrast to the noisy atmosphere in typical gaming-oriented cafés. However, the café charges Php15 per hour, which is three to five pesos more per hour than the other Internet cafes. Most of the clients are females, employees of nearby businesses, or relatives of migrant workers. However, the E-biz technician said that they have considered offering gaming services because the café's profit is affected by the game-oriented competition.

Internet cafés in the Philippines are not regulated or closely monitored by the government, and most Internet cafés do not impose restrictions regarding gaming, downloading applications, installing applications, or saving personal files. However, most owners comply with the ordinances of the LGUs that prohibit students from using Internet café services during school hours.

A few Internet café owners have begun to form national and regional associations to address venue issues, and the Internet Café Association of the Philippines is one example. The Internet Café Association of Cebu has 240 members.

Although privately owned, Internet cafés can be selected by LGUs to assist in ICT development. For example, in Imus, Cavite, the association of café operators helped the LGU regulate the student use of the Internet during class hours. The effort was supported by city ordinances.

Comparative View of Survey Results

Tables 1, 2, and 3 illustrate users by type of venue, uses of ICTs by type of venue, and barriers to information access by type of venue. The percentages are based on the surveys conducted for this study.

Table 1. Users by type of venue

Users profile (estimated proportion of users in each category, %)		Public Libraries				Community e-Centers				Internet Cafes				Other Venues			
		Urban		Non-urban		Urban		Non-urban		Urban		Non-urban		Urban		Non-urban	
		General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use
Gender	Male	52%	10%	0%	0%	48%	48%	0%	0%	61%	61%	0%	0%	39%	32%	0%	0%
	Female	48%	12%	0%	0%	52%	52%	0%	0%	39%	39%	0%	0%	61%	45%	0%	0%
Age	14 and under	14%	0%	0%	0%	0%	0%	0%	0%	16%	16%	0%	0%	32%	32%	0%	0%
	15-35	74%	22%	0%	0%	77%	77%	0%	0%	78%	78%	0%	0%	61%	39%	0%	0%
	36-60	10%	0%	0%	0%	19%	19%	0%	0%	6%	6%	0%	0%	16%	16%	0%	0%
	61 and over	2%	0%	0%	0%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Education level	No formal education	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Only elementary	0%	0%	0%	0%	0%	0%	0%	0%	7%	7%	0%	0%	0%	0%	0%	0%
	Up to high school	50%	36%	0%	0%	44%	44%	0%	0%	47%	47%	0%	0%	63%	29%	0%	0%
	College or university	50%	0%	0%	0%	56%	56%	0%	0%	46%	46%	0%	0%	37%	37%	0%	0%

Table 2. Uses of ICTs by type of venue

estimated proportion in each category %	Public Libraries				Community e-Centers				Internet Cafes				Other Venues			
	Urban		Non-urban		Urban		Non-urban		Urban		Non-urban		Urban		Non-urban	
	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use
E-mail	67%	29%	0%	0%	90%	90%	0%	0%	16%	16%	0%	0%	58%	58%	0%	0%
Chat	14%	10%	0%	0%	47%	47%	0%	0%	44%	44%	0%	0%	25%	25%	0%	0%
Web browsing	57%	29%	0%	0%	63%	63%	0%	0%	14%	14%	0%	0%	92%	92%	0%	0%
Blogs & social networking	19%	10%	0%	0%	13%	13%	0%	0%	20%	20%	0%	0%	71%	71%	0%	0%
Commerce & business	19%	10%	0%	0%	3%	3%	0%	0%	2%	2%	0%	0%	8%	8%	0%	0%
Phone or Webcam	33%	10%	0%	0%	23%	23%	0%	0%	45%	45%	0%	0%	21%	21%	0%	0%
Games	19%	19%	0%	0%	23%	23%	0%	0%	55%	55%	0%	0%	4%	4%	0%	0%
Other	14%	0%	0%	0%	7%	7%	0%	0%	26%	26%	0%	0%	0%	0%	0%	0%

The gender of the users both in public libraries and in CeCs are equally distributed between men and women. In contrast, most of the users in the Internet cafés are males, while most of the users in other venues are females.

Most of the users of public libraries, Internet cafés, and other venues are under the age of 26, while most of the users in the CeCs are 26 to 45 years old.

Table 3. Barriers for each type of venue

estimated proportion in each category %	Public Libraries				Community e-Centers				Internet Cafes				Other Venues			
	Urban		Non-urban		Urban		Non-urban		Urban		Non-urban		Urban		Non-urban	
	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use	General use	ICT use
Location, distance	10%	8%	0%	0%	23%	23%	0%	0%	4%	4%	0%	0%	3%	3%	0%	0%
Hours of Operation	14%	4%	0%	0%	7%	7%	0%	0%	3%	3%	0%	0%	10%	10%	0%	0%
Cost	14%	8%	0%	0%	3%	3%	0%	0%	25%	25%	0%	0%	0%	0%	0%	0%
Lack of skills / training	6%	6%	0%	0%	26%	26%	0%	0%	3%	3%	0%	0%	3%	3%	0%	0%
Not enough services	30%	6%	0%	0%	39%	39%	0%	0%	3%	3%	0%	0%	68%	48%	0%	0%
Not in right language	2%	2%	0%	0%	7%	7%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%
Not enough content	32%	0%	0%	0%	13%	13%	0%	0%	0%	0%	0%	0%	26%	19%	0%	0%
Other	6%	0%	0%	0%	25%	25%	0%	0%	47%	47%	0%	0%	52%	52%	0%	0%

The two most widely used ICT services across all public access venues, excluding Internet cafés, are email and web browsing. Internet café customers most often use pre-installed and online gaming. Aside from the ICT activities listed in the survey questionnaires, other activities mentioned by the public library, Internet café, and CeC users include research, encoding, and printing.

According to the library users who were interviewed, the top three barriers in accessing information are the obsolete collections and the limited numbers of books, journals, and references with locally relevant content, absence of Internet access (not enough services), and limited hours of operation.

Most CeCs users identified the limited number of services as the biggest barrier in accessing needed information. Most CeC users said they are not allowed to download and install applications in the venue and are only allotted a specific amount of time to use the equipment. Most of the users in other venues listed other factors, such as slow Internet access, limited workspace, limited availability of computers, and the site's lack of

availability for public use as the primary barriers in accessing information.

SUCCESS FACTORS

In general, the public access venues that were investigated during this study were accessible and affordable, and the services and technologies offered in the venues are appropriate to the needs of the users. These venues can be valuable education and training sites if further developed and maintained.

The government supports an enabling environment for ICT development, and the existing laws, plans, and strategies can be further pursued to advance ICT use. The professional staff within the government are dedicated to the advancement of ICTs, while partnerships and collaborative practices are being strengthened. Close collaboration among the interested parties has gone a long way towards identifying definitive goals, needs, and business plans to contribute to the development of successful ICT projects, while ensuring the participation of key stakeholders.

The existence of government-funded venues illustrates that the government provides resources for ICT development, but these resources are still inadequate. The government needs to provide more resources to maintain programs that have already been launched, and to develop the sustainability of those programs. Venues such as CeCs and public libraries should be given adequate funding that will cover equipment purchases and staff training.

RECOMMENDATIONS

The development of public access venues is not a priority for the LGUs, and they have not addressed the numerous glaring needs that this study revealed. Based on those needs, the researchers compiled the following recommendations.

More computers with Internet connectivity are needed in the LGU-operated venues to serve those people who cannot afford the fees at Internet cafés.

Public libraries should expand their membership to the e-library to include the municipal and barangay libraries and not just the provincial and city libraries. The LGUs should be encouraged to provide a service vehicle at least once a month to serve as a bookmobile to reach the outlying areas.

The Professional Regulatory Board should review and update the requirements for certifying registered librarians.

Among the successful CeCs visited, it was noted that most of the CeC managers had a background in ICTs. An effective CeC manager must be knowledgeable in ICTs and must be aware of how ICT development can improve government services. Moreover, CeC development should follow a business plan to ensure sustainability, given that most LGUs have so little income. As a relatively new information venue sponsor, LGUs should exert a much greater effort to promote the CeC sites.

Each LGU should form an ICT council that represents all public sectors and all segments of the population to guide the direction of the community

regarding ICTs. The LGU should also develop ways to ensure the sustainability of the CeCs by preparing and implementing a precise business plan to help the LGU afford the maintenance costs and the purchase of additional equipment.

It is also recommended that Internet café owners organize themselves locally, regionally, and nationally to present a united stand in voicing their concerns regarding issues that affect their businesses. They should also call for the creation of local ICT councils. They should press their own local LGUs to provide greater support for ICT-related policies.

Although government programs exist that are directed at providing Internet access to underserved areas, greater attention should also be given to develop services that provide information through mobile telephony. There are more people in the Philippines who have access to mobile phones than personal computers. The mobile service providers should be urged to provide services that encourage the subscribers to produce local content and produce content that will help other people.

Several applicable policy recommendations were presented in the paper entitled “Universal Internet Access in the Philippines,” regarding elements that should be present in crafting ICT policy in the Philippines. These recommendations include:

- Foster a pro-competitive market policy environment by adopting more technology-neutral policies.
- Craft a competition policy framework or law for the information economy that will promote competition and prevent anti-competitive practices among ICT providers and level the playing field among small, medium, and large participants.
- Adopt an open communications policy that allows open access to networks.
- Enact a broadband bill of rights to ensure free flow of information, supported by ba-

sic principles of openness regarding access, equality of data, diversity of content, and freedom of expression.

- Build technological capacities.
- Revive the Department of Information and Communications Technology (DICT) and strengthen the NTC bills.

Studies to facilitate policy development, capacity development, and ICT development are highly recommended, as are studies that will lead toward:

- Implementing initiatives that focus on public access venues and the underserved, including groups such as the indigenous people residing in mountain barangays.
- Establishing capacity-building programs designed to work with initiatives that promote public access to information and communication venues as opportunities for change.
- Developing the SMS capacity as an empowering tool for the underserved sectors of society.
- Improving the services offered in the country's public access venues.
- Developing methods for sustaining CeCs and provide ways to monitor the development of public access venues.
- Creating the means to standardize and synchronize policies and initiatives for ensuring the optimum use of the public venues.

It is notable that the Philippine Statistical Development Plan (PSDP 2005-2010) has included the collection and gathering of statistical data on ICT indicators across all levels, from the barangay to the national levels. The National Statistical Coordination Board's inventory of available ICT indicators in the Philippines can be improved to supply information that will be critical in determining demand and in formulating ICT policies, including:

- Geographic and population coverage
- Actual network coverage
- Disaggregated access data
- Available content and services
- Affordability assessment
- Sector-specific and gender-specific data

A Department of Information and Communications Technology is needed to replace the various government agencies now separately overseeing policy, regulation, and promotion of ICTs.

CONCLUSION

This research focused on public access to information communication venues in the Philippine Islands, and examined the experiences of specific venue types while concentrating on the public libraries, the CeCs, and Internet cafés. The researchers reviewed the policymaking environment in the country, including the programs and projects being implemented for the underserved in terms of ICT access and nurturing the growth of the telecommunications industry.

Source data were not readily available, and information about venue finances was difficult to obtain. Data were not readily available in far too many instances, and information, statistics, and references, particularly those that require disclosures on financial matters of the venues, were the most difficult to construct. At the field level, suspicions about the questions asked were apparent, and there were instances when the safety of the researchers was threatened. Nevertheless, there were stakeholders, users, and members of the general population who welcomed the research. Colleagues and ICT-development practitioners readily shared their studies, documents, and insights about the venues studied.

The researchers determined that many people in the lower socio-economic strata (54.77%) used the public access venues when affordability could have been an issue. The researchers concluded

that once those people become aware of how ICTs can improve their lives, far more underserved and disadvantaged people will use the venues.

National and local government agencies should initiate policies and programs to advance the role of ICTs in public libraries and the CeCs. Also, the potential of government-funded institutions and programs can become avenues to disseminate locally relevant information to the underserved population. The government supports the library network, but few libraries are located in rural areas.

Additional investigations can reveal ways to make the public access venues more accessible, affordable, and appropriate. Investments in studies can contribute toward policy development, capacity development, and ICT development.

ENDNOTES

- ¹ Although the team planned to collect the most recent statistical information, data were not currently available. For example, population statistics were referenced mostly from the 2000 Report of the Philippines' National Statistics Office. The National Census collected in 2007 will be available by the end of 2008 or early 2009.
- ² According to a 1998 DOST-PCHRD project, "Connecting People and Organizations for Rural Development through the Pilot Multi-purpose Community Telecenters in Selected Philippine Barangays."

Chapter 22

Public Access ICT in Malaysia

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EXECUTIVE SUMMARY

In the past several years, the issue of providing equitable access to information has received significant attention by various governments as an effective means to bridge the digital gap in their respective countries. An information-based society can become an important aid when pursuing national development goals. This current study was directed toward issues related to public access to information in Malaysia and placed an emphasis on information and communication technologies (ICTs) and how the underserved communities in the country benefit from various ICT-based services.

Malaysia is a good example of a developing country that understands how ICTs are an important factor in national development. In the last few Malaysian development plans, the country placed a significant emphasis on investing in ICTs and benefiting from them as a major contribution in economic development. This emphasis has been at the core of Malaysia's development strategies and

received much attention and support in a country that has existed for centuries on an agriculture-based economy. With ICTs as a key enabler for development, various projects in Malaysia have been developed in support of this view. These projects constitute high-level ICT-based services and products that promote ICT investment and application in business and daily life. Typical examples include a "multi-media corridor", various e-Transformation and e-Government projects, and investments in making electronic manufacturing and commerce part of the mainstream commercial activities. These projects are also aimed at making ICTs widely available in all parts of the country to be used by all members of the population. The following are a few of the successful examples:

- ICT-based education is available to most people through the heavy investment in ICT applications provided in the public school system.
- The national library system is being enhanced, refurbished, and extended to many regions that have not previously had libraries, especially in rural areas and where li-

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libraries either already have ICT-based provisions or are scheduled to receive them.

- A broad network of telecenters is being developed with the focus on placing them in rural and remote areas to bridge the digital divide, and, in so doing, increase the capacity of the users, enabling them to adopt various ICT services to serve their daily needs.

The examination of the information landscape and its use in Malaysia highlights two important issues that indicate how public access to information can provide positive results. The first issue is the determination of the government to exploit ICTs as a means to serve economic development. This approach creates a favorable environment in which the venues can exist, operate, and prosper.

The second issue relates to the fact that these information access venues are implemented as part of a well-devised plan that has a long-term view about applying the benefits. The importance of the venues as a long-term investment in the society is well recognized, and the venues are provided with the funds and support to operate well into future.

This chapter on Malaysia examines the issues and provides an overview of the country and the environment for ICT-based initiatives. It describes the public access venues and focuses on those established to accommodate the underserved and remote communities and groups. The chapter concludes with a number of key success factors and recommendations.

INTRODUCTION: COUNTRY OVERVIEW

Malaysia announced its independence in 1957 and has since grown to become a vibrant and modern nation in Southeast Asia. The country is composed of two regions – West Malaysia and East Malaysia – that combine to form a total land area of 329,847 sq km. The population in 2005

was estimated to be about 27 million, and most are of Malay, Chinese, and Indian origins.

The capital city of Kuala Lumpur is in the west central part of West Malaysia, and the nation is divided administratively among 13 states. The two primary national regions lie 650 km apart across the South China Sea. West Malaysia, the peninsular region, occupies the southern half of the Malay Peninsula and is bordered to the north by Thailand. East Malaysia lies along the northwestern part of the island of Borneo and consists of the states of Sarawak and Sabah.

Malaysia's culture is diverse and while the majority of the population is Muslim, much of the population practices the Buddhist and Hindu religions. Malay is the official language, but Mandarin and Tamil are widely spoken, and large numbers of the population speaks English as a second language. Overall, the literacy rate is high and education is compulsory.

The economy is relatively strong, but the country felt the effects of the global economic downturn in 2008, and a significant percentage of the population is underserved and unemployed. The economy has grown at a relatively steady pace and owes much to a strong international export trade. Historically, Malaysia has been a significant source of agricultural products, primarily rice, sugar, fruits, and rubber. There are major deposits of tin, and much of the population depends on commercial fishing. One of the most significant sources of revenue in recent years has been the burgeoning electronics manufacturing industry. Since the end of World War II, Malaysia has been a popular tourist destination.

The general economic outlook has been improving favorably except during an internal economic crisis in the 1990s and during the worldwide economic turbulence in 2008. There is a significant emphasis on ICT-based investments, and the role of ICTs is seen as a key enabler in the national economic development. This investment creates a favorable environment in terms of economic,

political, and legal initiatives to provide equitable access to information.

The major efforts in establishing ICT-based information access venues are supported by the current political strategies, and the government has stated its aim is to create a highly skilled and technologically informed society. So far, these efforts most are often focused towards the mainstream population and seemingly disregard the underserved elements, most of whom live in the rural areas and include women, the unemployed, elderly people, and those with little or no formal education.

While there are significant efforts to prevent or overcome ethnic-based inequalities, some minorities, especially indigenous groups, remain an important segment of the underserved in the country.

The government has been active and vocal in creating an information-based society and seeks to bridge the digital divide by establishing numerous i-community centers and rural Internet projects. These projects have been designed to serve the general public and to provide specific attention to support women, poor people, young unemployed people, elderly citizens, indigenous groups, and small business owners in rural areas. There are a few major and influential initiatives in this regard. One is an effort to make libraries and ICT services in libraries available in rural areas and to further aid those groups who regularly use the library services. ICT-based venues support the 1,326 public libraries through new telecenters or Community Service and Knowledge Centers (CSKCs). In Malay, they are known as the Pusat Perkhidmatan dan Ilmu Komuniti (PPIK).

Another such initiative is to establish i-community centers in the rural areas. Two of the largest projects are called the Rural Internet Project, or Pusat Internet Deasa in Malay, (PID). At the time this study was conducted, there were 42 PIDs established and they fall under the joint responsibility of the Ministry of Energy, Water, and Communication, and the Medan Info Desa

(MID) launched by the Ministry of Rural and Regional Development. Because the MID and PIDs are very similar in nature, and because the PIDs seem to be especially influential, the PIDs and PPIK libraries were included in this study.

With the strong support of the Malaysian government, these venues are tasked to provide ICT skills and Internet services and are meant to be the foundation on which to build a knowledgeable information-based society that can adopt ICTs for their daily needs. Since the 1990s, Malaysia has invested in various projects of this sort, and plans to reach full digital development by 2020.

Overall, the political and social environment and the general economic outlook are favorable, and the national equitable access goals appear to be within reach, including the oft-stated “one home, one PC” and the distribution of ICT resources to rural areas. Nevertheless, Malaysia faces significant challenges, such as widespread poverty, the low standard of living among marginalized groups, and the lack of strong human capital.

There are persistent socio-economic inequalities in the country that must be altered by successfully overcoming poverty and unemployment, improving income distribution, and reducing regional disparities. There is also a question of whether the ICT investments will bring the required foreign involvement needed to develop high-tech ICT sectors.

METHODOLOGY

When this study was developed and Malaysia was selected as a participant, the fundamental intent was to explore the public information access landscape in Malaysia. There was a special focus on the extent to which cost-free information access venues and facilities are available to the citizens and underserved groups and how these venues are used. The research also aimed to identify key success factors, challenges, and opportunities in

building an equitable information access landscape in Malaysia.

The study was conducted by using information collected from primary and secondary data and information sources. The data were collected from government reports, online sites, and newspaper articles, and supplemented by simple surveys of the venues. The researchers interviewed experts in the field from academic and government organizations. To further understand the information access landscape, the researchers included an overall assessment of the country, the underserved communities, and initiatives designed to provide those communities with free access to public information.

Two major information access venues were examined - public libraries and i-community centers (the PIDs). The venue operators were surveyed through a random sampling among all of the venues distributed across the country – 16 libraries and 18 PIDs were surveyed. The survey was designed to describe the demographic characteristics of the venue users and the way in which they used the venues. The survey was conducted by e-mails and followed up with telephone calls. Although the survey did not intend to make particularly strong claims about the information access landscape in Malaysia, the results were sufficient for learning about issues the researchers raised.

The research team experienced disruptive delays when seeking permission from the Malaysian authorities to conduct the study. However, after the authorities granted the permission, the methodology began with a literature review that was based on official reports from the government ministries and various online reports, news articles, and the Internet. A number of key professionals and venue operators were surveyed to acquire details about the information gathered.

Venue Selection

The research team selected specific venues and conducted site visits to survey key stakeholders,

venue operators, private-sector professionals, and government officials. The venues included public libraries, telecenters, and cybercafés, as well as the government supported i-community centers in rural areas that often provide cybercafé-like services, ICT training, and connections to local and national networks. Wireless access to information via hot spots has become increasingly available in various cities, cafés, and public places and was added to the scope of this study.

The study encompassed 1,326 public libraries and 42 i-community centers distributed throughout Malaysia. The 42 the i-community centers and 250 of the libraries were located in rural areas. One hundred percent of the rural centers offered ICT services, but there were no definitive data to state how many of the urban facilities offered the services.

The libraries in the national system are being supported by new telecenters opened either in or near the libraries. There currently are 250 such centers and more than 500 are planned. All such ICT-based venues in Malaysia are opened with the idea of bridging the digital divide and focusing on serving the rural areas. The researchers considered all of these venues in non-urban areas, as well as a few in the urban locations.

Inequity Variables

With regard to the public's access to information and ICTs in Malaysia, several inequity variables influence access, but the most significant inequities are socio-economic status, educational level, age, gender, and venue location.

Socio-Economic Status

The Malaysian GDP has consistently remained steady at approximately 5% over the past several years, except for the international downturn in 2008. The country is becoming increasingly service and industry oriented, and agriculture, which had played such a prominent economic

role in Malaysia for so long, grows smaller and smaller. Agriculture accounted for only about 8% of the GDP in 2007.

While the national economic outlook seems to be generally favorable, there is a sharp discrepancy between the earnings of the rural population and those of the urban population. Compared other south Asian countries, Malaysia has one of the highest income distribution disparities, which is particularly unfortunate because almost 100% of the population has access to public education. Furthermore, the socio-economic limitations affect mostly those people living in rural areas who have a low income, perhaps have no employment, or are working as farmers, despite the fact that the venues seem to be established such that it is easy to reach out to this segment of the population.

Educational Level

In general, Malaysia has a high literacy rate because almost all of the population has attended primary school and many have attended secondary school. The primary and secondary formal education system claims successful enrolment levels for both females and males, with the primary school enrollment rate at almost 100%. A person's residential location and general socio-economic status may have an impact on who can attend a university and who cannot. From the standpoint of education, the less educated persons are more often residents of the remote and rural areas of the country, where the PIDs offer these segments of society an invaluable opportunity via ICT-based information access venues.

Age

According to estimates made in 2008, the gender distribution according to age for the Malaysian population was:

- 0 to 14 years: 31.8% (4,135,013 males and 3,898,761 females)

- 15 to 64 years: 63.3% (8,026,755 males and 7,965,332 females)
- 65 years and over: 4.9% (548,970 males and 699,302 females)

The distribution among the age groups shows that Malaysia has a relatively large young population. However, the number of elderly people in Malaysia almost doubled over the twenty years between 1970 and 1991. The numbers increased by another 35% over the next ten years to the year 2000. Based on recent population projections, the number of elderly people is likely to increase to more than 3.4 million by 2020. As larger numbers of the already elderly population move into an even older category, there will consequently be a greater need for facilities and care of the aged.

It has generally been recognized that even among the elderly, different age groups display different characteristics, and they are clearly not homogenous in their needs. The PPIKs are generally designed to serve the younger population in the rural areas while the PIDs are aimed more towards the older active adults, such as farmers and SME owners.

The projects that aim to develop information access venues are intended to bridge the digital divide, not only in terms of location and the provision of services, but also in terms of age groups. As such, they are intended to help adults and older people perform better in their daily lives and also to help young and unemployed people who live in rural areas.

Gender

According to estimates made in 2008, data available through the World Bank list the gender demographics and ratios in Malaysia as follows:

- At birth: 1.07 male-to-female
- Under 15 years: 1.06 male-to-female
- 15 to 64 years: 1.01 male-to-female
- 65 years and over: 0.78 male-to-female
- Total population: 1.01 male-to-female

According to the 2007 Global Gender Gap Index (an index measuring economic participation and opportunity, political empowerment, education attainment, and health and survival), Malaysia was ranked 92nd out of 128 countries. (The status of women dropped twenty places compared with the data listed for 2006.) The 92nd rank places Malaysia in a somewhat comparable position when compared to other Asian countries including the Philippines (6th), Vietnam (42nd), Thailand (52nd), Singapore (77th), and Indonesia (81st).

Malaysian women, though well motivated, have yet to achieve gender equality. Women hold only about a quarter of the top managerial and decision-making positions in the public sector, and the female-to-male ratio of students in the country's tertiary education system is just over 2 to 1. The government claims that it has a goal of reaching a 30% quota of women at all levels of decision-making in the country as set forth in the government's Ninth Economic Plan.

Women in Malaysia generally earn much lower wages than their male counterparts, and the actual differentials are a function of the specific occupation. Women receive more income in clerical and office work in relation to men, but receive lower salaries in other jobs where men are predominantly employed, such as in sales and engineering.

On the positive side, the Malaysian government continues to promote gender equality and the empowerment of women.

Location

Malaysia is viewed as having two primary but distinct national regions that lie 650 km apart across the South China Sea. West Malaysia, the peninsular region, occupies the southern half of the Malay Peninsula and is bordered to the north by Thailand. East Malaysia lies along the north-western part of the island of Borneo and consists of the states of Sarawak and Sabah. The total population in 2005 was estimated to be about 27 million, and most are of Malay, Chinese, and Indian

origins. The peninsular Malaysia is more heavily populated than East Malaysia (around 80% of the total figure), and more than 60% of those people live in urban areas.

The information access venues, whether they are libraries or PIDs, are all intended to bridge the digital divide between the urban and rural populations. Consequently, most of the venues are located in rural or less-developed parts of the urban areas. The venues are conveniently located near post offices, health clinics, or libraries for easy access.

In 2004, the Malaysian Ministry of Water, Energy and Communication identified a total of 89 districts with underserved communities that need special attention. Many of the districts are new, including those in Kedah (5 new districts), Perak (2), Selangor (4), Negeri Sembilan (1), Melaka (2), Johor (3), Pahang (8), Terengganu (6), Kelantan (9), Sarawak (25) and Sabah (21).

Data Collection

The research team was given the task of exploring the information access landscape in Malaysia with a special focus on the degree to which cost-free venues are available and used by the general public, especially underserved groups. The research was conducted to identify key success factors, challenges, and opportunities in building an equitable information access landscape in Malaysia. The research effort was supported by information collected via primary and secondary resources. The data were collected from government reports, online sites, and news articles. The team used a simple survey of the venues and conducted interviews with experts from academic and government organizations.

To understand the information access landscape in detail, a number of issues were examined, including an overall assessment of the country, the underserved communities, and the initiatives that were designed to serve these underserved communities. The two major information access

venues examined were the public libraries and i-community centers, or PIDs.

Venue operators were surveyed through a random sampling among operators from all the venue types distributed across the country. The survey, which was conducted via e-mails and telephone conversations, focused on 16 public libraries and 18 PIDs and was constructed to help the researchers understand the demographic characteristics of the users and the way they use the venues. Although the survey was not meant to provide data to support particularly strong claims about the information access landscape in Malaysia, it was sufficient to provide the operators' views about issues that the researchers raised.

In some of the survey interviews, the operators did not fully understand the questions, and some answers to the questions therefore did not make much sense. These responses were discarded to assure that they did not skew the results of the survey.

OVERALL COUNTRY ASSESSMENT

Public Access to Information

The public and private sectors in Malaysia have both voiced a strong commitment to deploy ICTs nationwide. Collectively, they consider ICTs one of the most important factors for enabling Malaysia to reach its national development goals by the year 2020. Thus, ICTs are expected to have a major role in fostering economic growth and providing a positive influence on the quality of life across the entire population.

Much of the population has long had access to newspapers, television, and radio broadcasts, but mobile telephony penetration is now very high throughout Malaysia. Personal computer ownership is estimated to be as high as 88% in urban areas, but no more than 12% in the rural areas. In the urban areas, citizens can access information either at home, in the workplace, at the cyberca-

fés, or in the many wireless hotspots that exist in public places, such as shopping centers and cafés.

The government has made various attempts to bridge the digital divide and bring ICTs to the rural areas. The results have been mixed, but these efforts have featured a number of programs to build telecenters and community Internet access venues to bring ICTs especially to those underserved people who live in rural areas. Most of these national projects are established with the specific intent to empower women, poor people, young unemployed people, elderly citizens, indigenous groups, and small business owners in rural areas.

Among the larger of these projects is the Rural Internet Project called the Pusat Internet Desa (PID), led by the Malaysian Ministry of Energy, Water and Communication, and the Medan Info Desa (MID), launched by the Ministry of Rural and Regional Development. There also are a few regional initiatives, such as the e-barrio project, and some small-scale projects by individual local states.

The Malaysian Communication and Multimedia Commission also administers a Universal Service Provision scheme where the installation of network facilities has been planned for underserved areas in combination with public telephone access and the placement of Internet centers in public libraries and health clinics.

Despite the many challenges, the overall information access landscape in Malaysia seems to the research team to be supported by the government, to be reasonably organized, and to be serving the needs of underserved areas.

Access, Capacity, and Inequity Environment

The access to information in urban areas is largely determined by private ownership of computers and the availability of an Internet connection at home or work, in Internet cafés, and access to hotspots in public places. There still seems to be a lack of access for those people who live in urban

areas and who cannot afford a computer, or are unable to use the facilities in the Internet cafés.

Since the early 2000s, the government initiatives designed to open telecenters in rural areas seem to have been particularly effective in bringing ICTs to underserved communities and groups. An important aspect observed in these initiatives is that there has been a conscious effort to make accessibility feasible to the underserved people within a local context. This was accomplished by providing the services at very low use fees at the centers and providing free basic ICT training to build the technological capacity of the users.

It was concluded by the researchers that there is a clear understanding in Malaysia that access to ICTs, in terms of physical presence, affordability, and capacity building, is still not sufficient to empower the underserved. Unless the capacity of the underserved to use ICTs effectively is greatly improved, those people will never be able to reap the full benefit available to them. One way to implement that needed level of improvement is to provide the infrastructure, services, and training for free, or at an affordable cost. Although much has been done to make the services of telecenters affordable, there are many who still cannot afford even very small fees.

Because ICTs are considered significant in the economic development of the country, formal ICT training is being presented even in the early years of primary education through the Smart School project. In general, interest in ICTs, and the acknowledgement of the value that ICTs offer, have long been strong in Malaysia, and have led to reasonably well-skilled users, especially in the urban areas.

The rural area projects show great promise in bridging the digital gap, improving accessibility to ICTs, and aiding the public in adopting ICT use in daily life. Given this circumstance, there are a number of initiatives available through the community centers to build the technological capacity of both the operators and users. The governmental agencies provide centrally located

training for the center operators who then train other trainers and users.

The telecenters have also been active in adapting the efforts invested in accessibility to improve the welfare and value of their respective communities. Consequently, the need to build locally relevant content, and to provide the means to connect to other content in the country, is an important and urgent need. So far, with a few notable exceptions, the activities at the telecenters seem to be useful in being converted into some degree of support for women, unemployed people, and small-to-medium business owners. The real economic benefits are very difficult to quantify.

Malaysia has a multi-ethnic society with about 27 million inhabitants. Several religions are freely practiced, but the official religion is Islam. The majority of the people are Muslim Malays, although many are Hindu Indians, Buddhist Chinese, and Christian Bumiputra. There are a few other minor religious faiths represented.

From a labor force of more than 11 million, only 3.5% are said to be unemployed. This percentage is clearly a relatively good situation for the country in comparison with Malaysia's neighbors in south Asia. From an unemployment standpoint, the percentage does not seem to create significant inequity issues.

For Malaysia, the three principal types of inequities are individual, ethnic, and regional, and most sources claim that even these inequities have decreased since the 1970s. However, there is an awareness that regional differences, especially in terms of differences among states, that has become more and more noticeable. Individual inequality has often become a problem with regard to the unequal distribution of income. Despite the importance of low educational levels and unemployment, the underserved communities are most commonly described in terms of the distribution of income.

Information Needs of the Underserved Communities

As a part of the government's Ninth Economic Plan to deliver a strategy to provide equitable access to information using ICTs, the government announced its intent to bring ICT services to the rural areas where most of the underserved population resides. The needs of these people range from using ICTs for communication purposes, to using them to enhance their lives and businesses. As such, the people who are already enrolled in formal education need to be supported via ICT-based information access opportunities in order to increase the quality of learning. The government views this approach as an important step towards raising the country's human capital in terms of knowledge. Additionally, those people who have little or no formal education still need to be able to use ICTs. They can then benefit from access at least to communicate with friends and relatives and improve their employment opportunities.

Access to information through ICTs can deliver immediate benefits to two of the most deserving groups. First, the unemployed need to access employment information, and, second, women need to be empowered to gain a more equitable status in the society. In order for these groups to be successful in resolving these concerns, locally relevant information must be provided through the venues.

Economic, Policy, and Regulatory Environment

Malaysia has 13 states with 11 geographically distributed across peninsular Malaysia. Malaysian Borneo is divided between the other two states. Since gaining independence, the Malaysian government has learned much from the growth strategies of strong south Asian countries, such as Taiwan, South Korea, Hong Kong, and Singapore. The government successfully managed to achieve

a consistently growing economy of approximately 7% until the late 1990s.

The fast growth was followed by economic crises marked by huge public expenditures and deep budget deficits. However, after receiving extensive external support, primarily from Japan, the country started to recover and began its plan to specifically attract foreign investment in ICTs. The country continues to develop by heavily investing in, and harvesting the benefits of, ICTs. This has been accompanied by a firm political drive to increase public awareness with respect to using ICTs in economic and social initiatives.

The Malaysian government functions as a "federal constitutional elective monarchy" and follows an unusual practice of electing a King to a five-year term. The country is governed by a parliament composed of a senate and a house of representatives. Various national issues, such as finances, defense, education, and foreign affairs are administered by the central government.

As ICTs become an increasingly important tool for development, the legal infrastructure is also being developed in tandem. One of the more recent Malaysian plans explicitly focuses on the development of the legal infrastructure, especially directed toward e-business applications, services, and authentication.

The national and local economic environments are largely influenced by the Vision 2020 segment of the National Development Plan, and Vision 2020 emphasizes various issues that affect access to information in the country. These policies stipulate that Malaysia is to become a technologically developed nation by 2020, where knowledge is expected to drive economic development and be managed by having ICT-related activities at the core of the new growth. The thrust of Vision 2020 addresses the persistent socio-economic inequalities by overcoming poverty and unemployment, improving income distribution, and reducing regional disparities.

Two of the challenges to implementing growth through Vision 2020 directly relate to ICT devel-

opment and equitable information access for the population. The first was to “establish a scientific and progressive society,” and the second was to provide assurances for “an economically just society, in which there is a fair and equitable distribution of the wealth of the nation.”

As this study was being conducted, one of the most prominent national initiatives was focused on efforts under the heading of “Moving Malaysia into the Knowledge-Economy.” The intent was to have Malaysia become a fully industrialized and fully developed nation capable of sustaining an annual 7% growth while incorporating changes in the economy to adapt to the mandated ICT implementation.

A review of the Malaysian Ninth Economic Plan indicates that the period from 2006 to 2007 showed a positive economic growth with the GDP being slightly over the target, a decrease in poverty, increased accessibility, and an improvement in the quality of education. The economy was closer to becoming a knowledge-based economy with an improved infrastructure to support all key industries and services.

As noted in the Ninth Economic Plan, the trends in the economic environment are expected to feature three key subjects.

- Despite a loss of momentum in the global economy, the Malaysian GDP is projected to stabilize at 6% per year.
- Direct foreign investment in high technology and knowledge-intensive industries will be pursued.
- Priorities will be given to poverty reduction, an improved standard of living for marginalized groups, and a strengthened human capital.

Collaboration practices already existing across venues, and future opportunities

There seems to be two streams of work on telecenters in Malaysia. One is promoted by the Ministry of Energy, Water and Communications,

and the Ministry of Education promotes the other. The former promotes the nationwide communication infrastructure and services investing in the rural areas for development. The latter is actively promoting telecenters in support of libraries and improving the general level of education, especially in remote areas.

As the ICT and Internet activities develop, there is growing effort towards creating a network among the venues and sharing resources, such as local content, e-business, and government-related information.

The venues are seen as essential parts of the infrastructure needed to create a knowledge-based society. Recent efforts have aimed to compile these venues under one umbrella as unified, high-quality information and community centers.

The Buzz Factor

The single most prominent initiative in Malaysia stems from the government’s goal of becoming a technologically developed country by 2020 by heavily investing in ICTs, building a “multi-media super corridor,” and becoming a central ICT hub in South Asia. If Malaysia can achieve this goal, it will create an excellent political and economic environment in which to launch, implement, and evaluate ICT-based venues while creating opportunities for greater public access to information.

Additionally, the concept of bringing ICT-based venues to the rural areas is widely thought to be an excellent opportunity to create new and important opportunities for all of those young people, women, farmers, and craftsmen who would otherwise continue to struggle to exist in their present situations. The Internet and the information base it provides are welcomed and widely adopted in the rural communities.

Legitimate Use

There is a widespread perception that typical venue users often engage in trivial or casual uses,

and, in general, the operators are moderately well trained, open minded, and supportive of users' requests. However, the PIDs and i-community centers are designed for non-trivial uses where the locals can engage in more restricted information searches and e-business activities. To support this approach, the government centrally trains the operators, especially the operators at the PIDs, and the government-trained operators train others to support the users. This pattern improves capacity building among the users in ways that are viewed as legitimate and not trivial.

Shifting Media Landscape

With the high penetration of mobile telephony, and with the applications and services that can be used on Internet-enabled "smart" phones, the overall access of the public to information is becoming increasingly available to most of the population. In 2008, mobile penetration in Malaysia was estimated to have reached 90%, and most of the services were GSM-based while the 3G subscription rate was only about 5%. The services are often used by some local public organizations to inform the citizens about the availability of services. There also are subscription-based news services offered by newspapers and some television channels.

The features of Web 2.0 are becoming a common part of Internet-related activities among the majority of those who actively use the Internet. The venues often promote existing community sites, such as Facebook, but also adopt Web 2.0 tools for their ongoing venue operations and provide an added service for their user bases. The operators often train the users to build their own community-based projects. The end result of all of these factors has shown that 3G, video-based web sites, and other Internet uses are becoming more accessible through mobile phones.

VENUE ASSESSMENT

Malaysia is a federation of 13 states, 11 of which are located on the Malay Peninsula, while the other two, the Sarawak and Sabah states, are on the island of Borneo. There are two state libraries in the urban state, Selangor, while one library has been allocated to the rest of the 12 states.

Most of the telecenters that were completed by 2008 were built as part of the public libraries in the non-urban areas under the scope of a USP project, and most of those centers were placed in the libraries on the Malay Peninsula while only a few were placed in the Sarawak and Sabah states. Through initiatives of the USP, new PPIKs are to be added to existing rural libraries, and, in some cases, in new libraries are to be opened together with PPIKs in small villages that have not had libraries previously.

The main state libraries are equipped with Internet access, while the smaller libraries located throughout the non-urban areas have none. However, with Internet access in the main state libraries, access to the Internet is easier than in the past. The main state libraries offer a variety of nationally interconnected information, as well as a venue to serve the users.

With the new initiatives under the USP, some effort is being made to equip all rural libraries with PPIKs. In 2008, approximately 250 had already opened. The goal is to establish a total of 500 to cover the rural areas where so many of the underserved reside.

The i-community centers are developed under the Rural Internet Project established as a national information technology policy to bring ICTs to rural areas. The project was established to: 1) improve the level of ICT literacy and awareness among the targeted rural and underserved communities, 2) compensate for traditionally low personal computer and Internet penetration, especially in rural areas, and 3) provide opportunity to the rural communities to use digital technologies.

The project was developed under the leadership of the Malaysian Ministry of Energy, Water and Communication and has been very innovative and serves as an example to many telecenter developments in other parts of the world. The basic model uses a balanced three-part development to provide resources and infrastructure, build capacity, and foster creation of relevant content.

The Rural Internet Project was started in 2001 with 14 venues and has now been extended to 42 venues, most of which are established at the post offices where they cover rural areas.

The i-community concept is essentially a community-development project run by local community leaders and volunteers. The primary aim is to empower the most underserved population segments, including women, young and uneducated people, and senior citizens. The project further aims to provide access to information related to education and agriculture, and to support small-to-medium enterprises in the rural areas of the country.

Malaysia seems to have created a reasonably favorable environment for supporting access to information through its recovering economy and the efforts to promote the benefits of ICTs. This is especially visible in the USP-driven initiatives to bridge the digital divide, where the efforts are quickly moving into rural and remote areas of the country. As a result of these efforts, whether they are PPIKs in libraries or PIDs as community centers in post offices, the information access venues that have already opened, or are to be opened soon, seem to be well organized and planned as a means of building capacity as a whole. This situation creates a favorable context for increasing the levels of public access to information sources.

Information technology seems to be following two primary paths that aim to create a favorable means to improve access to information in Malaysia. The first is seen in the ongoing support of formal educational channels and libraries that are closely connected to the formal education system. As such, the awareness, knowledge, and capacity

of those who are already in the formal education system are enhanced with respect to information sources, venues, tools, and technologies.

The second path is seen in the effort to serve those people who live in rural and remote areas of the country, and to also serve those people who are not necessarily in a formal education program. This path is supported by creating community-based activities in venues, such as PIDs, which meet the needs of these underserved users. The activities in these venues include teaching ICT skills to people of all ages to enable small-business owners to adapt ICTs to their businesses, and to make content on government services or locally relevant issues available to the public.

The researchers concluded that the venues that are being opened are, for the most part, well planned. Unlike some other developing countries, there is a conscious effort to ensure that the venues will be able serve the local communities as they were intended. Although there are a few exceptions, the venues in Malaysia closely follow the established requirements for training and providing information access. The venues generally are well received by the community, and there is a growing interest in rural communities being able to use the venues.

In general, there is strong environment and political support for making the information access initiatives a success, and the venues are often equipped with good technological infrastructure. This vision and outcome can serve to create good leadership and help to ensure a long-term sustainable model for the venues. What is most important is that there is a qualified, centrally trained operator (especially in PIDs) who is responsible for maintaining the venues and who can train users to improve their technological capacity. There also are a few local programs in place to train new trainers.

The venues aim not only to provide information access facilities for casual use, but also to support businesses and provide complex information services, such as job-search services or government

information. The PPIKs are well positioned to serve those who are enrolled in formal education, and the PIDs are well positioned to offer services to those living in rural areas, adult users, SME owners, and those people who have little or no formal education.

A notable weakness in the venues is the lack of awareness by the users as to how the venues and the ICTs can improve their lives. This especially true regarding PIDs and their position in underserved communities. There are also rare cases where the operators do not have the necessary skills to support the users.

The government has recognized the value of creating opportunities for building an information-based society through these venues. The persons interviewed for this study described how the venues are important in bridging the digital divide and supporting overall ICT investment and development in the country. Without such solid support, the government's aim to become a technologically developed country by 2020 by exploiting ICT investments may not be realized.

SUCCESS FACTORS AND RECOMMENDATIONS

The Malaysian government has stated its intent to develop its economy with ICTs is at the heart of the strategic activities. Consequently, the ICT-related industry and services are seen as the foremost enablers of this effort, and much has been achieved in the past decade to indicate that the initiative is working. The evidence lies in the creation and use of the "multi-media corridor," the investment in establishing ICT-enhanced schools and the provision of ICTs in rural areas using a variety of telecenter projects.

Malaysia places great importance on ICTs in the overall national development, and the role of ICTs for information access inevitably follows. For instance, the Ninth Economic Plan for development has achieved success of telecenter

projects, such as the PPIKs and PIDs. So far, the venues, especially PIDs, have been successful in serving the purpose for which they were created by enabling users to benefit from ICTs and the accessed information.

It appeared to the researchers that the effort put into establishing the PPIKs and the i-community center PIDs seems to be well planned and is benefiting the local communities. Most of this success can be attributed to the government's strong support in achieving ICT-based economic development. While there is a favorable environment in this respect, much is still needed, including investment in improving awareness and capacity building in the remote areas of the country, especially among underserved people.

These efforts require even greater investments to establish them not only as a mainstream solution, but also as a solution that can reach out to help underserved communities. To achieve this goal, resources need to be directed specifically towards promoting the venues and to providing special ICT-skill training for those who are as yet unaware of the venues, as well as those who live in the remote parts of the country. To be effective, this direction must have the special provisions needed to serve women, the uneducated, and the unemployed and poor. Among the key success factors are the following:

- The government must be committed to making ICTs work for Malaysia's overall welfare.
- The projects related to the information access venues must be well planned. Regardless of whether the venues are PIDs or PPIKs, the reasons for establishing the venue and the use of the resources must be designed improve the technological skills of the users.
- The venues must be well distributed across the nation and be located near post offices, libraries, or health clinics. They must be

located so that the local populations can access them easily.

- The operators of the venues must be adequately trained to serve the users and trained to make the venues successful.
- There must be programs in place to train people in ICT skills and community building to make the venues pleasurable places to attend, especially important for PIDs.

Given these success factors, the following recommendations to the policy makers and the responsible organizations can also be made:

- The creation and operation of the venues seems to be reasonably successful, but these venues and the services they offer must be focused more on the underserved population.
- Greater effort is needed to increase awareness and improve local community participation, especially for PIDs and those people who use them.
- The venues should be more active in serving the various ethnic communities, especially those people who cannot speak either English or Bahasa.
- In some PID and PPIK venues, there is an urgent need for local content directed towards the needs of the local users and underserved communities.
- There is a need for a broader selection and variety of local content that will appeal to the users, especially in PIDs. The users also should be encouraged to create such content.
- Most of the effort in building the PIDs and PPIK telecenters comes from governmental sources. A public-private sector partnership might prove valuable.

CONCLUSION

This study into the landscape of public access to information in Malaysia examined the overall status of ICT investment and use, and indicated that government investment is what led to opening a large number of venues for the public to access information. These venues, often called telecenters, were evaluated with regard to their planning, use, and the resulting benefits available to the communities. There was a particular focus on underserved areas and communities.

The fieldwork for the study proved to be difficult because of constraints imposed by the various government agencies, even when Malaysian nationals directed the study. The survey was completed with the full support of a company that was prominent in building the telecenters. The venue operators were responsive and voluntarily provided data about the users and venues.

This research revealed a number sound approaches to creating and operating information access venues and how those venues can be beneficial to the local communities by building capacity and meeting the needs of the public.

In general, the creation and implementation of public access venues in Malaysia has been successful and the following issues can add value to the venues:

- When appropriate, the venues must seek to focus more on the groups in underserved communities and avoid concentrating on the mainstream users.
- The venues need to become more influential in developing public awareness, building user capacity, and improving local participation.
- All venues, and especially PPIKs, must provide local content in Bahasa and English and become fully supportive regarding other ethnic groups and languages.
- Local content must be created, expanded, and improved and must focus on the under-

served communities. This content needs to be relevant to local users.

It is expected that the results of this research can provide valuable insight into Malaysia regarding the status of the initiatives and projects involving public access information venues. By understanding the processes and results of these initiatives, the Malaysian stakeholders can develop effective new policies and improve those policies already in place. The insight from the Malaysian experience can serve as an example for other countries initiating and perfecting their approaches and needs.

This research primarily examined and explored the issues related to creating new venues and improving existing venues, as well as on how the venues operate to achieve their aims. A subsequent study to validate and verify the findings revealed here is highly recommended. In general, finding and understanding effective information access processes can serve to improve the quality of life and welfare of the individuals in the study area, especially for ICT-based projects.

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Chapter 23

Public Access ICT in Indonesia

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EXECUTIVE SUMMARY

Indonesia is the largest archipelago and the fourth most populous country in the world. The nation is composed of more than 17,000 islands and has a population of 220 million. About 42% of the people live in urban areas, and 29% of the total population is under the age of 14. Education is compulsory for children between 6 and 15 years of age, and the literacy rate is said to be 92%.

Indonesia was selected to participate in this international study to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, how they realize successes, and how they meet the needs of underserved communities and groups.

The methodology for this study began with a literature review of more than thirty documents. The review was followed by selecting specific

venues, site visits, and surveys of key stakeholders, venue operators, private-sector professionals, and officials of the Department of Communication and Information. The venues were selected because they were: 1) open to public, 2) government backed, 3) required no fees, 4) distributed nationally, and 5) address the information needs of the population, especially those who cannot afford to own a computer, or who lack the skills to use information and communication technologies (ICTs). The researchers conducted interviews in person and by telephone. They examined literature on 1) e-government, 2) the national and local governments, 3) the use of ICTs in Indonesia, and 4) economic and social reports from the Indonesia Central Bank and the Board of Statistics. The researchers obtained data through questionnaires and conducted interviews with sixty public venue operators at nine locations.

This study focused on the public libraries, Warmasif (information society cafés) and Warintek (technological information cafés). Indonesia has 14,516 public libraries, 63 Warmasif, and 84 Warintek. Computer education and capacity-building programs were established in

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the 1980s, and there was a significant increase in Internet access in the mid-1990s. Large numbers of people began regularly to use computers at Internet cafés, and the improved economic conditions allowed greater numbers of the people to afford personal computers. There is a perception among many Indonesians that computers are generally expensive and are to be used by higher-income and higher-social-status people. In some cases, potential users are unaware that there are services provided by the government and venues where free access and ICT training are offered. Capacity building and ICT training are urgent needs. In the venues studied, operators often lacked adequate training to aid users. Limited economic means limits huge numbers of people, while people with higher incomes and social status have more opportunities and skills to use ICTs. There is also a lack of locally relevant content. Most people who use public information venues are educated, young, and ICT literate.

Country Overview

The Indonesian Republic is the largest archipelago and the fourth most populous country in the world. The country proclaimed its independence on August 17th, 1945, when the 349-year-long Dutch colonization ended. Indonesia is composed of more than 17,000 islands that include five main islands (Java, Sumatra, Kalimantan, Sulawesi, and Irian Jaya) and 30 smaller archipelagos. Java is the smallest of the main islands and has the largest population. Administratively, the country is divided into 33 provinces on the 5 larger islands. Java Island is the smallest among the larger five, but it has the largest population segment in Indonesia.

The Indonesian economy grew rapidly in the 1980s but suffered financial crises in the late 1990s. After 2000, the government instituted reforms that led to a controlled inflation; the economy began to then recover and unemployment decreased. These

reforms created a slightly better environment for the underserved population, with the unemployment rate dropping by about 1% each year from 2004 to 2008.

The national population is estimated to be approximately 220 million. About 42% of the people live in urban areas, and 29% of the total population is under the age of 14. Education is compulsory for children between 6 and 15 years of age, and the literacy rate is said to be 92%.

Computer education and capacity building programs were established in the 1980s, and there was a significant increase in Internet access in the mid-1990s. Large numbers of people began regularly to use computers at Internet cafés, and the improved economic conditions allowed greater numbers of the people to afford personal computers.

After 2000, the government began to prioritize information and communication technologies (ICTs) in education. About that same time, the government and many private-sector businesses also started using ICTs. This rapid widespread interest led to the sharp increase in the number of Community Access Points (CAP) where the public could access public information via ICTs.

By 2008, the use of ICTs was extremely popular, and increasing numbers of people sought access to the Internet. This shift was especially apparent in higher education, where huge numbers of students, faculty members, and administrators use the Internet to search for academic and scientific information, news, and entertainment.

Indonesia was selected to participate in this international study to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, how they realize successes, and how they meet the needs of underserved communities and groups.

METHODOLOGY

Team Qualifications

The lead researcher initially worked with graduate students in the UK to gather data, with two more researchers later added to form the small team to conduct the work in Indonesia. Each of these two additional researchers had a Master's degree in Information Systems. They collaborated on the research to collect data and complete surveys. There was also a part-time staff assistant who helped collect data from public libraries by telephone. Collectively, the team has many years of applicable research experience. The local researchers have several years of experience specifically in managing and designing various research projects in Indonesia that proved to be especially valuable in conducting the interviews and data analysis.

This study focused on the public libraries, Warmasif (information society cafés), and Warintek (technological information cafés). Indonesia has 14,516 public libraries, 63 Warmasif, and 84 Warintek. The Warmasif is tasked to decrease the digital divide by accelerating access to information for Indonesian society and especially for underserved communities. Each Warmasif serves three main topics: 1) e-commerce for small and medium businesses, 2) e-libraries for students, teachers, and the public, and 3) e-health information. The Warintek is tasked to empower documentation sources, information sites, and libraries funded by the Department of Research and Technology. Most Warintek venues are located in local public libraries, higher education libraries, government documentation units, and in non-government organizations (NGOs).

The specific venues were selected for the study because they were: 1) open to public, 2) backed by the government, 3) required no service fees, 4) distributed nationally, and 5) address the information needs of the population, especially

those who cannot afford to own a computer, or who lack the skills to use ICTs.

Literature Review

The methodology for the study encompassed a literature review of more than thirty documents and interviews conducted in person and by telephone. The researchers selected specific venues, made site visits, and surveyed key stakeholders, venue operators, private-sector professionals, and officials of the Department of Communication and Information.

The literature review included data and publications on 1) e-government, 2) the national and local governments, 3) the use of ICTs in Indonesia, and 4) economic and social reports from the Indonesia Central Bank and the Board of Statistics. The team collected data through questionnaires and interviews with sixty public venue operators at nine locations.

Venue Selection

This study focused on Indonesia's 14,516 public libraries, 63 Warmasif (information society cafés), and 84 Warintek (technological information cafés). The more than 5,000 Internet cafés were excluded because they do not meet the selection criteria and are privately operated commercial venues. Universities and schools also were excluded because they serve their students. Telecenters, Aceh Media Centers, and the Information Plaza were excluded because they are not dispersed throughout Indonesia.

Warmasif (Information Society Cafés)

The Warmasif are tasked to decrease the digital divide by accelerating access to information for Indonesian society, especially for underserved communities. Each Warmasif serves three main topics: 1) e-commerce for small and medium

businesses, 2) e-libraries for students, teachers, and the public, and 3) e-health information.

Warintek (Information Technological Cafés)

The Warintek are tasked to empower documentation sources, information sites, and libraries funded by the Department of Research and Technology. Most Warintek venues are located in local public libraries, higher education libraries, government documentation units, and non-government organizations (NGOs). The objectives of the Warintek are to improve local information resources and to help underserved people access public information.

Public Libraries

Indonesia has three types of public libraries. There are traditional libraries in small towns and villages that lack ICTs, semi-modern libraries in cities that have no online services, and modern libraries that use ICTs. Most of the latter are concentrated in the larger cities.

Inequity Variables

A number of important inequity variables were observed in Indonesia that affect the public in general and are important in assessing the public's access to information and ICTs. The more important factors include educational levels, socio-economics, gender, venue locations, and cultural influences. People who have higher income and social status have more opportunities and skills to use ICTs and access information more often and easily. Most of those people are among the better educated. Many of those people have access through their personal computers or in the workplace.

Gender and cultural influences are closely related, with men having generally more opportunity to access the technologies. In Indonesia as a whole, the culture offers more opportunities to

men than women, and, based on a survey of the venues, urban libraries have more male visitors than females. But in non-urban areas, more females use libraries than males. Warintek claims to have a balance between male and female users.

In Indonesia, the location of the venues is generally the most important inequity. Many islands and widespread non-urban areas are populated largely by people who have limited education and employment opportunities. There are many small-to-medium-size businesses located in non-urban areas, such as in Pundong Bantul, that sell a variety of locally available products and handmade crafts, and most of the workers in these businesses are women. These women are a visible part of the underserved public and rarely have any formal education, IT capacity, or computer skills.

Because the ICT infrastructure is very weak in these areas, the access to information venues in these remote and distant regions is very limited, even if the local people had the necessary skills. There have been some efforts by the Department of National Education to enhance Indonesia's ICT infrastructure, but even these efforts are limited and clearly inadequate.

Data Collection

The researchers interviewed public sector professionals in Central Java and in Yogyakarta. They were selected because they have stated an ambitious goal to provide public access to information in their own communities. Related supporting data were gathered during telephone interviews with the representatives from the Department of Communications and Information, and gathered additional background data about the government initiatives designed to provide public access to information venues. The researchers interviewed four public-sector professionals and academics, and more than sixty operators at public information venues. These interviews included 9 site visits and 45 survey respondents. Fifteen were at the

public libraries in 7 urban and 8 non-urban areas, 15 were at Warmasif in 9 urban and 6 non-urban areas, and 15 were at Warintek in 8 urban and 7 non-urban areas.

OVERALL COUNTRY ASSESSMENT

ICT infrastructure, technological investment, and public access to information in Indonesia are an enormous challenge due largely to the country's unusual geography and huge population. With more than 17,000 islands, Indonesia is the world's largest archipelago. Its population is estimated to be 220 million, and 42% of those people live in non-urban areas that are often very remote.

The Indonesian economy grew rapidly in the 1980s but suffered financial crises in the late 1990s. After 2000, the government instituted reforms that led to a controlled inflation, which helped the economy recover and unemployment to decrease. These reforms created a slightly better environment for the underserved population, and the unemployment rate dropped by about 1% each year from 2004 to 2008.

Computer education and capacity-building programs were established in the 1980s, and there was a significant increase in Internet access in the mid-1990s. Large numbers of people began to regularly use computers at Internet cafés, and the improved economic conditions allowed greater numbers of the people to afford personal computers.

After 2000, the government began to prioritize information and communication technologies (ICTs) in education. About that same time, the government and most private-sector businesses also started using ICTs. This rapid widespread interest led to the sharp increase in the number of Community Access Points (CAP) where the public could access information via ICTs.

By 2008, the use of ICTs was extremely popular, and increasing numbers of people sought

access to the Internet. This shift is especially apparent in higher education, where huge numbers of students, faculty members, and administrators use the Internet to search for academic and scientific information, news, and entertainment. Although regional and socio-economic differences in adopting ICTs are pronounced, the general trend has been positive.

Access, Capacity, Environment, and the Inequity Environment

There is a strong political will in Indonesia for creating an information-based society as a strategic objective. The local and central governments have expressed their determination to achieve that goal despite the difficult challenges presented by ICT investment and education.

There is a widespread perception among the general population that computers are expensive and are to be used by well-educated people and people who have higher-incomes and a higher social status. In some cases, potential users are not even aware that there are services provided by the government and venues where they can obtain free access and ICT training.

There is an urgent need for extensive and low-cost capacity-building programs and ICT training throughout Indonesia. In the venues studied, venue operators often lacked adequate training to provide more than the most limited support for users, especially for those users who needed help with anything more complex than e-mail, chat sites, and web browsing. Many potential users, for example, are owners of small-to-medium businesses in non-urban areas who could apply much of the available business development, financial, marketing, and promotional information immediately.

There also is a huge lack of locally relevant content. There are a few promising indications that some local content is being developed, sometimes in collaboration with the private sector.

Information Needs of Underserved Communities

Most of Indonesia's population does not have access to ICTs for a variety of reasons, such as low income, location of the venues, and gender, or they have little or no formal education. The difficulties of investing in and providing a well-equipped infrastructure in so many islands, and for such a large population, keeps ICTs either unavailable, or, if available, not up to modern equipment and technological standards.

Internet cafés are often unaffordable, especially for the underserved population. There also is a commanding cultural inequity throughout the society that strongly favors men over women, thereby reducing information accessibility for women.

The government has expressed its intent to improve the access to information in non-urban areas. The approach is to encourage small-to-medium businesses to set up more public access ICT venues in exchange for help in building more e-commerce facilities.

Economic, Policy, and Regulatory Environment

Based on a 2007 economic report from the Indonesia Central Bank, the Indonesian economy is beginning to improve, and the local regional economies are increasingly contributing to the growth of the national economy. The growth could favorably influence the government investment in ICTs and add to any awareness that the government is intent on enhancing the quality of public services and access to information.

The government has shown a tendency to support and strengthen small and medium enterprises in many local regions. One of the primary objectives for developing Warintek and Warmasif was to provide scientific and technological information to those enterprises. That objective, in turn, can contribute to the acceptance and adoption of ICTs

and help the public to become more aware of the value of ICTs in commercial activities.

The main legal framework that influences the right to public information is a law on freedom of public access to information ("UU no 14 tahun 2008" on freedom of public access to information) issued in April 2008, which ensures the right of people to access that information. Based on this law, the Department of Communication and Informatics is supposed to develop media centers to be distributed nationwide. Under this directive, a media center is defined as a venue that provides information while operating as an ICT training center and Internet connection venue. The venues are to be equipped with modern user-friendly technology, including multimedia technologies.

The government has issued policies to bolster the ICT infrastructure and the move towards development of an information-based society. In recent years, the government has aimed to involve public needs and opinions in developing such policies. As an example, the government initially had a set policy against access to Youtube, but then reversed that policy after a number of ICT professionals and organizations became involved and urged the government to make the change.

The scope of the regulatory environment gives the government authority to regulate radio and television frequency licenses, the postal service, and all telecommunications. The researchers found that the general regulatory information was posted on the website maintained by the Ministry of Communications and Informatics, but the details of the processes and content were not posted.

Collaborative Practices Across Venues and Future Opportunities

The venues included in this assessment, and especially the Warinteks and Warmasifs, are collaborative projects by their nature and have been instrumental in developing local content and adding more services. The post offices provide the physical locations, while the local governments

help and support the creation of locally relevant content.

Buzz Factor

A common topic of conversation throughout much of Indonesia is the government's ambitious goal to establish a successful and sustainable information-based society by 2015. In support of that goal, the government has been developing many new public information access venues while improving the existing venues. The researchers observed a trend in this development effort towards providing venues that are comfortable, easy to use, attractively designed, and equipped with a full range of modern technologies, applications, and services.

Ani Yudhoyono, the First Lady of Indonesia, has expressed her personal support for developing mobile venues for public access to information called "mobil pintar" (smart car), a comfortable facility for public access to educational information. In parallel, the initiative also includes a mobile service called a "motor pintar" (smart motorcycle) that is similar in purpose to the mobil pintar, but uses motorcycles. The intent of the entire initiative is to provide public access to educational information, while also promoting some similar initiatives launched by many local governments and sometimes by the public sector.

In Yogyakarta, the local government is developing the "taman pintar" as a "science techno park" equipped with modern technologies. These facilities are designed to provide the infrastructure to house venues that will provide access to learning opportunities and educational information. These initiatives are expected to attract people to attend public information access venues and use the services.

Legitimate Use

The researchers were unable to observe any significant restrictions on the use of ICTs for entertainment, chatting, or social networking at public

libraries, Warmasifs, or Warinteks. They noted that some pornography websites have been banned.

Shifting Media Landscape

There is a significant penetration of mobile telephony throughout the country as an individualized and personalized medium that is increasingly used as a source of information. Also, a number of cafés and public places are now wireless hotspots and serve people who can afford a laptop computer. This new means of interaction and access holds many implications for improving the government organizations, saving time and money, creating e-participation, and influencing public policies.

Some government websites have introduced blog facilities to serve the population, but the limited public acceptance would seem to indicate that the concept might be too advanced at this time for large segments of the public who have no formal training in ICTs. However, the use of ICTs in developing web-based communities is expected to improve the public's level of acceptance, and, in turn, affect ICT developments in the future.

VENUE AND LANDSCAPE ASSESSMENT

Many public libraries with Warintek venues provide online services and offer application software and programs for local use.

Mobil pintar and motor pintar are new initiatives that offer access to educational information. Mobil pintar is a mini-van type vehicle used as a venue to provide access to information, and motor pintar is a venue on a motorcycle that offers the same services. They are new models for mobile public libraries with a focus on educational information, and a large number of the mobil pintar and motor pintar operate in many provinces. Both of these venues are equipped with modern technologies to facilitate learning, often under the guise of entertainment.

Libraries

The Indonesia National library was established 1980 under the Department of Education and Culture through an integration of four large libraries in Jakarta. In 1987, the national library was moved to a new building in Jakarta that also houses the main administrative offices for the library.

Late in 1989, the Indonesian government passed a law to reorganize the National Library, and under the provisions of the new law, the national library became an institution reporting directly to the Indonesian President. As such, the library then had a new authority and was no longer under the responsibility of the Department of Education and Culture.

In 2002, the government issued a decree to regulate all library-related occupations, including qualified librarians and circulation personnel. In 2007, the government issued, yet another bill, the “UU no 43 tahun 2007,” to redefine the objectives and functions of all government libraries. One provision of the 2007 bill was a statement about how to delegate the authority and responsibility for library administration and maintenance.

Today, there are 14,516 public libraries in Indonesia, and most of them are located in the capital city of Jakarta. However, every province and district, and many individual villages also have public libraries. In Indonesia, public libraries are described as one of three principal types:

- Traditional libraries, such as those commonly found in small towns and villages.
- Semi-modern libraries, commonly found in cities and larger urban communities. Many have adapted ICTs, but lack online services.
- Modern libraries, located in large cities and in institutions for higher education. Nearly all have ICTs and online services.

Warmasif

Warmasifs are built on a Community Access Point (CAP) model. The organization was founded in 2005 through collaboration among the government’s Department of Information and Communication, the Post Office Department, and the local city governments. As of April 2008, 63 Warmasif locations had been established in urban and non-urban post offices.

The primary objective of the program was to reduce the digital divide in Indonesian society. The Warmasif organization aims to accelerate the accessibility of information among the general population with a special emphasis on persons who are unable to afford access or who have little or no knowledge of ICTs. Each venue provides three information services: 1) e-commerce for small-to-medium businesses, 2) e-library services for students, teachers, and the general public, and 3) e-health care information.

As a public information center, the Warmasif provides public to access the Internet, general computer use, printing, transferring digital data (photos and documents), and other related assistance.

For a population as large as that of Indonesia, the number of Warmasif users is particularly low, and much of the underprivileged population remains unaware of the initiative. To increase that awareness, the organization, the Indonesian Government, and the Post Offices need to increase their efforts to publicize the Warmasif services through the mainstream newspapers, television, and radio media.

The Warmasif program is plagued by a misconception among the underprivileged people that computers are unreasonably expensive, and that only wealthy people with a high social status are able to use the technologies. To offset that concern, the government should provide free technological training in ICTs. The result would serve to dispel the belief in the social discrepancy by educating the underprivileged on the benefits of ICT usage.

The researchers found that people who used the ICT services at the Warmasif searched primarily for information pertaining to current news, personal information, and job opportunities, while relatively few sought health care information. A few people used the service to find information about commerce and business, and the researchers generally concluded that the Warmasif services are still far from reaching their full potential among the users.

Warintek

The concept for the Warintek program as a technological information café was developed in 2001, and the objective was to empower venues to provide access to documentation and information, and serve as a form of digital library. The effort has been successful in implementing many activities, such as establishing ICT services, that, in turn, have helped people access information while enhancing a variety of human resources and improving the local community information resources. As one example, the results have helped some owners of small business to gain access to capital.

The Department of Research and Technology began funding the Warintek program in 2001, but when that funding ended in 2005, many Warinteks were funded by local governments, and, in some cases, the venues were able to develop their own revenue streams. Some local governments have expanded the Warintek program with local initiatives to develop a digital library.

The Warintek program now involves many local public libraries in higher education institutions, PDII-LIPs, and NGOs. The effort has aided the venues by implementing many services, such as enhanced ICTs. This program's aim is to improve local economic development by providing technological information to small commercial enterprises.

As an example of one local success, Warintek continues to provide volumes of locally relevant information in Bahasa while catering to

underprivileged communities and rural areas. There is a special focus on serving small and medium business enterprises. The information provided includes databases, survey results, applied technologies, images and pictures, and sketches of remote sensing and mapping. One of the most popular subject areas is the information and literature sought by primary and secondary students about biology, chemistry, physics, and environmental sciences. All of the information is presented in the PDF format where it can be downloaded from www.warintek.ristek.go.id, or provided in a CD format.

Much of the information regarding local content is developed by a local government agency and features local cultural information, local products, and similar subjects. The Sleman and Bantul local districts have implemented the mobile Warintek in conjunction with their mobile library to deliver the services to remote areas by using cars or motorcycles.

ACCESS, CAPACITY, AND ENVIRONMENT FOR VENUES

Public Libraries

Public libraries are the most widely available public information access venues in the country. The libraries are found in every province, district, and in many villages. The district public libraries reach some remote villages through mobile transportation. A reform movement began to emerge in Indonesia in 1998, and the issues of democracy and human rights became popular, which drove many people to seek access to information about human rights. To meet the research demand, the government was either unable or unwilling to assign a priority to providing information access through the public libraries.

Based on site visits to three locations at Yogyakarta, the researchers believe that the facility management and online services infrastructure at

the venues can be improved, and that the venues have not yet adapted ICTs optimally. The Yogyakarta Public Library was only beginning to develop Internet access and online services. The library plan calls for establishing a network linking all Yogyakarta public libraries and the higher education public libraries.

The public libraries charge users a very low membership fee, and only the Bantul Public Library offers all of its services free of charge.

Each public and higher education library has a librarian appointed by the government, who pays their salaries. Sometimes, the libraries recruit part-time staff or short-term trainers to meet the local demand. Because of the need for well-trained librarians, some public libraries need to introduce special training to enhance the capacities of their librarians.

Most of the users of non-urban libraries have a high school education or less, but most of the urban library users are university students. Few high school students use urban libraries. While it is possible to find universities throughout the country, most are located in urban areas. For this reason, it may well be that the public libraries provide locally relevant content.

Some local government agencies have been developing digital libraries through initiatives that work in parallel with many other similar government programs, including Warintek and Jardiknas.

Warmasif

There are 63 Warmasif venues established in post offices in all of the 27 Indonesian provinces. Twenty-six venues are located in urban areas, and the other 37 are located in non-urban areas. The venues were funded by the Department of Information and Communication from 2005 to 2008, but when that funding ended, the responsibility was given over to the local governments. When local governments were limited in the funds they could provide, some of the venues were able to develop a certain degree of self-sustainability.

The government has announced plans to establish a Warmasif venue in the post office in each city throughout the country by 2010. Each Warmasif venue contains a room in which Internet-enabled computers, a printer, scanner, card reader, and other hardware are provided. For a nominal fee, users are able to access the Internet, scan and print documents, and transfer digital data (photos and documents). In urban areas, Warmasif venues are open from 8:00 am to 4:00 pm, while in non-urban areas, the venues are open from 8:00 am to 2:00 pm.

The infrastructure and furnishings are provided through various sources, but, in general, the provisions are as follows:

- The Ministry of Information and Communication Technology provides each venue with three personal computers, a unit server, a digital camera, a printer, and a scanner.
- The local government has the responsibility to announce and promote the venue, support ICT training for small and medium business, and provide the content for the main website, which includes e-commerce for small and medium enterprises, e-health information services, and the e-library.
- The post offices provide the physical space and facilities, maintain the hardware and software, provide a telephone line and Internet connection, and update the supporting data. As such, each post office is charged with managing the Warmasif.

Both the post office and the Department of Information and Communication are concerned with communication and information, thereby making the Warmasif a relevant mission for them. With the expectation that access to the Warmasif will become a fixture in the daily routine of the users, the integration of the venues within a post office is strategic.

The size of the venue staff depends on the services offered within each Warmasif venue. Some locations may have only one staff member, while others might have two or three people.

Because the Warmasif is part of the national Information and Communication System and operates under the Ministry of Information and Communication, the program receives direct support from the Department of Information and Communication. The Ministry of Information and Communication has the following agenda:

- Improve information services.
- Improve the infrastructure for information, postal service, and communication.
- Support delivery and distribution of information for the public.
- Improve the technological capacity of the population.

In keeping with that broad agenda, the Warmasif program was established with the following objectives:

- Decrease the digital divide in society while assisting the nation's population to access public information, knowledge, and communication.
- Support the development of small and medium businesses by using e-commerce, with a focus on decreasing poverty.
- Provide information and knowledge in the field of education and health.

The announced intention of Indonesia to create an information-based society appears to have influenced some public policies to provide access to public information. Some segments of the private sector have responded to the policies through direct donations and have become involved in public access venues. For example, in Warmasif Malang, a private company called the

PT. Nurama Indotama is a partner in developing a cable network infrastructure in that venue.

Warintek

Most Warintek venues are embedded within local public libraries and the libraries at higher education institutions. Based on site visits and interviews with Warintek operators, the researchers concluded that there are differences in the infrastructure, equipment, and, to some degree, the focus, at each venue. For example, the Bantul Warintek staff has been developing a considerable amount of local content and also provides free hotspots in their facility. In contrast, the Puspar UGM Warintek facility is quite limited. Differences also were found between the UNNES Semaraing Warintek and the Brawijaya Warintek, although both develop scientifically based content for students.

The Warinteks only charge an Internet usage fee, which is lower than the fees charged at an Internet café. Only the Bantul Warintek facility offers its services without a charge.

Warintek venues are located in government-sponsored public libraries, public libraries at higher education institutions, government documentation agencies, and NGO facilities that offer public information access. Each institution site that has been awarded a Warintek program must provide personnel to maintain and manage the venue. Each person is trained by the staff of the Department of Research and Technology, but the skill levels of the personnel are seldom equivalent among the venues. The people who work in Warinteks at higher education institutions are nearly always more knowledgeable and more highly skilled than the people who work at other locations. For example, the staff at the Warintek UNESA facility offers more services than those people who work at Warinteks in local government public libraries. The differences are noticeable as they offer ICT training for developing a website for small and medium business enterprises.

By being funded by the local government and higher education institutions, some Warintek venues are motivated to develop locally relevant content. For example, Warintek Bantul site develops local content related to the needs of the community. Most of the Bantul residents work at small and medium enterprises and need information related to their businesses, such as how to care for marketable chickens or ducks, or how to use coal briquettes most economically.

In other examples, the Warintek Sleman venue developed local content in 2009 that related to the local culture and also applied technology to small enterprises. All of the content is available on the local Warintek website. The Warintek Brawijaya staff also develops local content relevant to their users and also focuses on scientific information needed by students who attend the Brawijaya University.

Most Warintek venues provide information that can be downloaded through their website because increasing numbers of Internet users and households are connected to the Internet. In addition, the Indonesian government has said that Internet connections will be provided to all villages in the country by 2009 and anticipate a huge increase in the number of Internet users in the near future.

Warinteks that are associated with the public libraries in higher education institutions are influenced by the increasing investments the government has been making in the educational system. The Department of National Education has aggressively funded the development of a digital library. However, these locations do not offer significant services to the general public, although they are beginning to focus more on ways to upgrade the ability to deliver Internet access to remote areas. They also plan to develop local content, but less aggressively than the Warinteks in higher education institutions.

The government's announced intention to institute an information-based society has influenced certain public policies designed to provide

public information access. Many private sector companies and individuals have responded to the policy by becoming actively involved in the initiative and by helping to make donations.

Revenue Streams for Publicly Funded Venues

The resources needed to fund public libraries come from various sources. The national government, including the National Library and the Department of National Education, allocates the funds for libraries in educational facilities, and local governments fund the local public libraries with the support and donations from the private sector. The fees charged for library memberships contribute a minor amount to the government and private funds, and no fees are charged for the library services.

The Department of Information and Communication, the local post offices, and the local governments jointly fund the Warmasif venues. The operational costs include the staff salaries and are paid by the Warmasif. The user fees are quite cheap and average about three US cents per hour, but if the venue has many users, then these fees can help to offset the operational costs. The revenues from the user fees are usually low, especially in underserved areas, and often do not contribute much towards the operational costs. For example, one Warmasif venue in a non-urban area had to close down because of a low fee income. In general, user fees are only applicable for Internet access, but the fee is usually cheaper than the fees charged at cybercafés for Internet access. Only the Warintek Bantul venue offers free services.

The Department of Research and Technology funded the venues from 2001 to 2005, and the funds were focused on computer equipment, Internet access, and local content. After 2005, all of the venues were required to become self-sustaining. Venues that are embedded in local public libraries are funded by the local government, but if the

venues are embedded in higher education institutions, the hosting institutions must fund the venues.

Case Example

Yogyakarta is located on Java Island. The city is home to a large number of schools and universities and is widely known as a “city of education and culture.” The local government of Yogyakarta has developed an information network and maintains many public information venues.

The city’s information plaza building is equipped with modern technologies and is designed to accommodate a comfortable location for people to study. People can access a wide variety of information, from government reports, books, and magazines, as well as access the Internet. Many of the available resources have some local content.

Comparative View of Important Venues

The three most important venues that can successfully offer information access to the public via ICTs are the public libraries, Warintek, and Warmasif project venues. While libraries are widely distributed throughout the country in various forms, almost none of them are equipped with ICTs. Libraries conventionally provide a standard set of services, such as access to books, journals, and a host of other printed materials. The Warintek program is motivated in part to make libraries more contemporary and well equipped with new information technologies related to a wider range of information resources and most notably through the Internet. In that way, the Warintek program develops in parallel with the investments in education. Because this investment has been too slow to evolve to meet the goals that have been set, various local authorities, agencies, and higher education institutions became active in creating a more useful Warintek operational

model. This collaboration was initiated by adapting appropriate new technologies and locally relevant content, apart from the needs of some rural areas, largely because the content relates to materials that are focused for use in education.

The Warmasif program is an initiative designed to help bridge the digital divide in various parts of the country where the information resources are not equally distributed. The Internet connection, for example, is very weak in many rural areas. While the educational institutions support the Warintek venues, the Warmasif sites are co-located with post offices. Currently, 63 Warmasif venues are distributed in all provinces of the country. Unlike the Warintek program that aims more towards supporting educational activities, the Warmasif program is intended to empower local communities by bringing ICTs and capacity-building skills directly to them, and, therefore, the Warmasifs function more like telecenters. However, very large numbers of the public, and especially those in underserved communities, are still unaware of the venues and the services they can provide. As a result, these centers must be more heavily promoted before they will ever begin to reach their full capacity to serve the public.

All three of the venue types have urgent needs to build technological capacities, both to provide trained personnel to operate the venues and to educate the local communities about the value of the technologies. These needs are especially important to the underserved communities and groups. The capacity issue is not exclusively a venue related problem, but is a reflection of the overall resource and ICT infrastructure needs of the nation in general. There are equally important needs for awareness programs and locally relevant content for the Warmasif users because these venues can provide service to the communities in the government’s effort to create an ICT-enabled society.

SUCCESS FACTORS AND RECOMMENDATIONS

In the course of conducting this study, the researchers identified the following points as key success factors affecting the public access to information and communication in Indonesia:

- The access to public information in Indonesia depends to a great extent on the location and accessibility of the information venues. The venues must be placed in areas that are near the targeted population. For example, the Warintek UNNES is located in the State University of Semarang and serves students and small commercial enterprises. It also serves as an ICT training center, Internet access point, and digital library. Its location is in the midst of its targeted user group. The Bantul Public Library is another venue that meets these location criteria. The venues equipped with mobile services reach out to remote areas, and visits the areas each day.
- To be successful, the venues must provide locally relevant content that meets the needs of the people, especially in the underserved communities. As an example, at the Warintek Brawijaya facility located in the University of Brawijaya Malang, the venue provides scientific and applied technological content needed by students. The venue is successful because it meets the needs of the specific user target group.
- For any ICT training center to be successful, it must provide training in a way that recognizes the limitations of the socio-economic constraints of the users, either by being offered for free or at an extremely low cost. As an example, the Warintek UNNES center offers free ICT training to high school students and small commercial enterprises. The researchers believe that free ICT training will significantly

encourage the use of ICTs among the underserved people. The local government of Bantul provides free ICT training that is supported by a multi-national NGO in a facility equipped with ICTs and a skilled instructor.

- It is essential for the venues to be staffed with well-trained staff who are motivated to help the users overcome the difficulties in using the hardware and software. The Warintek Bantul venue offers free access and provides the trained staff to help the users, but that is not the case for many other Warintek facilities.
- The government must be more active in the effort to improve the quality of public access to information. Furthermore, it must work harder to enhance the quality of local content and the ICT services by developing better and more reliable bandwidth, telecommunication infrastructure, and ICT hardware, software, and venue furnishings.

The following recommendations summarize the key public access issues that need to be resolved.

- Indonesia has many public libraries, but only about 1% of them have ICTs. That percentage must be increased to meet the needs of the population.
- Public libraries lack sufficient locally relevant content. The local government needs to bear the responsibility for developing the content to fill that void.
- Most public libraries are not sufficiently comfortable to encourage learning.
- Many underprivileged people still do not know about the Warmasif program because the venues are quite new and have not been sufficiently promoted. The government and the postal service need to work together to promote the program to the public through newspapers, television, and radio.

- Many underprivileged people perceive that computers are expensive and are generally used by wealthy people who have a high social status. Local governments should provide free ICT training for underprivileged people so that they can learn the benefits of ICTs.

CONCLUSION

There is a strong political will in Indonesia to create and sustain an information-based society, and the government seeks to achieve that goal despite challenges in ICT investment and education. There is a commonly held perception among Indonesians that computers are generally expensive and are to be used by people with higher incomes and a higher social status. In some cases, potential users are unaware that there are services provided by the government and venues where free access and ICT training are offered.

Capacity building and ICT training are urgent needs. There is also a lack of relevant content in the venues. Among the venues studied during this investigation, operators often lacked adequate training and related skills to aid the users. Limited economic resources hinder huge numbers of people; those with higher incomes and social status have more opportunities and skills to use ICTs. Most people who use public information venues are educated, young, and are ICT literate.

Gender also hinders access, with men generally having more opportunities than women to access technologies. The culture favors men over women, and more males use public libraries than females. However, in non-urban areas, more women than men use the libraries. The Warintek venues claim little imbalance between male and female users.

Location is probably the most important access inequity. Many islands and widespread non-urban areas are populated mostly by people who lack suf-

ficient education and employment opportunities. There also are many small-to-medium businesses located in non-urban areas selling hand-made crafts, and most of the workers in these businesses are women. Because little ICT infrastructure exists in these areas, there are few available venues to improve the opportunities for these people.

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Chapter 24

Public Access ICT in Kazakhstan

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EXECUTIVE SUMMARY

The Republic of Kazakhstan is the ninth largest country in the world; however, it has a population of only 15 million. Kazakhstan is roughly the size of Western Europe and had been the second largest republic of the former Soviet Union until gaining independence in 1991. The nation has subsequently experienced enormous political, economic, and social changes. The national economy relies heavily on the extensive natural wealth in oil, natural gas, and metal ores, including large deposits of uranium. The worldwide markets for these products produced a growth in the GDP of nearly 10% each year in 2002 through 2006, but the economy was sharply affected by the worldwide financial liquidity crisis in 2007-2008.

Kazakhstan shares its borders with Russia, Uzbekistan, China, Kyrgyzstan, and Turkmenistan, and the country is divided regionally among sixteen administrative areas. Astana is the capital, and the other most prominent large cities are Almaty, Karagandy, Shymkent, Atyrau, and Oskemen.

The climate is continental, with warm summers and colder winters, with precipitation that varies between arid and semi-arid.¹

The political structure of the country is based on a bicameral parliament, and as Kazakhstan's head of government, a prime minister chairs the Cabinet of Ministers. The president is the commander in chief of the armed forces and may veto legislation that has been passed by parliament.

Ethnically and culturally, Kazakhstan is widely diverse, with Kazakhs being the largest ethnic group, followed by Russians and more than one hundred lesser ethnic minorities. Islam is the primary religion, followed by Orthodox Christianity. Although the official language is Kazakh, Russian is used predominantly in business and casual communication.²

Kazakhstan's huge territory and low population density combined with the ethnically diverse population, present a challenge to developmental and technological change. An over dependence on the extractive industries has worsened the situation. At the same time, these factors present an opportunity to develop an information-based society using modern information and communication

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technologies (ICTs) that can bridge distances and differences in age, ethnicity, and language. The deployment of these technologies, and the development of an information-based society, present huge social, political, and cultural challenges.

Rapid economic growth, high literacy levels, and new government programs were largely responsible for the increased computer and Internet penetration in Kazakhstan. Increased disposable income levels allow more and more people to own computers. Decreasing Internet tariffs and the increasing availability of broadband coverage in large cities allow for easier access to information. Implementation of government awareness programs will provide access to key government services for all of the population, especially to underserved and vulnerable groups.

Largely because of the promising opportunities that Kazakhstan presents, the country was selected to participate in this international investigative study to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework in Kazakhstan. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

COUNTRY OVERVIEW

The Republic of Kazakhstan was the second largest republic of the former Soviet Union and became an independent nation in 1991. Since that time, the country has undergone a wide range of political, economic, and cultural transformations. Kazakhstan is the ninth largest country in the world (roughly, the size of Western Europe) and is one of the world's least densely populated nations with a little over 15 million people. The regional climate is continental, with warm summers and colder winters, and the precipitation varies between arid and semi-arid conditions.³

Vast distances between communities present a challenge to development, and because Kazakhstan is the largest landlocked country in the world, the lack of any direct access to seaports further constrains development. Kazakhstan shares its borders with Russia, Uzbekistan, China, Kyrgyzstan, and Turkmenistan. Kazakhstan is divided administratively among sixteen regional divisions composed of fourteen oblasts (regions) and the cities of Almaty and Astana (the capital). The other most prominent cities are Karagandy, Shymkent, Atyrau, and Oskemen.

President Nursultan Nazarbaev has held office since independence in 1991, and the bicameral national parliament tends largely to be pro-presidential. The president also is the commander in chief of the armed forces and may veto legislation passed by parliament. A prime minister chairs the Cabinet of Ministers and serves as the functional head of government. Opposition to the incumbent Nur Otan party is weak and seldom faces any significant political challenges. Since 1991, Kazakhstan has pursued a balanced foreign policy and has worked to develop its economy, especially through oil and natural gas production.

The national economy relies heavily on the extensive natural wealth in oil, natural gas, and metal ores, including large deposits of uranium. The worldwide markets for these products produced a growth in the GDP of nearly 10% each year from 2002 to 2006, but the economy was sharply affected by the worldwide financial liquidity crisis in 2007-2008 due to dependencies on credits from abroad by the banking sector. The country's booming financial and construction sectors were affected the most. The GDP then increased by only 8.5% percent, and economic growth was expected to slump further given the world's economy in 2008. The limited money supply and increasing food prices caused a sharp increase in the inflation rate, which was 18.8% percent at the end of 2007 and into 2008. The government has presented several reforms in the effort to manage the infla-

tion rate and provide appropriate assistance to the troubled economy.⁴

The population is ethnically and culturally diverse. Kazakhs are the largest single ethnic group, followed by ethnic Russians and more than one hundred smaller ethnic minorities. Kazakhstan allows freedom of religion; many different religious beliefs are represented, although Islam is the leading religion, followed by Orthodox Christianity. The official language is Kazakh, but Russian is used in predominantly business and daily communication.⁵

METHODOLOGY

Sponsored by the University of Washington, the research for this study was performed by two teams in Kazakhstan under the supervision and guidance of PACT Mongolia, a non-government organization (NGO) based in Ulaanbaatar, Mongolia. The project focused specifically on the information needs of underserved communities, public access to information and communication venues, and the role of ICTs. The researchers examined the physical infrastructure and human resources at a variety of such venues, while evaluating information content and service usage patterns, communication and knowledge production, and environmental factors, such as governmental policies, geography, ethnic and linguistic differences.

This research was conducted in two phases in 2008 by two local teams under the supervision and guidance of PACT Mongolia. The first phase of the research was conducted by the KAMEDA Research and Consulting Center, Almaty, Kazakhstan, and was lead by Alexandra Kazakova. Her team included professionals experienced in media research, advocacy, and human rights. During the second phase, the team was lead by Andrew P. Beklemishev, an ICT consultant with research experience in using ICTs for development, Sergey Olexuk, Executive Director of Medsocioinform

Foundation, and Adil Rodionov, a Ph.D. candidate at the Department of Social Studies, the Eurasian University.

The methodology for this study was based on data and information gathered from a variety of sources. The teams reviewed the existing infrastructure and human resources and subsequently focused on venue types, information content, service usage patterns, and communication methods. These subjects were examined in light of the influence of governmental policies, geography, and ethnic and linguistic differences. As a result, the following eight venue types were selected for the study:

- **Public libraries:** the most widespread and most common venue for access to information.
- **Public Access Sites (PAS):** this type of venue includes sites created as a part of the framework for the State Program on Reduction of Information Inequity that includes information kiosks, Internet access centers, Internet access points at Kazakhtelecom (the national telecom operator), and Kazpost (the national postal service provider).
- **Internet cafés:** Internet access points that usually charge a fee for access. Sometimes they are a café with a few personal computers and offer Internet access, and sometimes they are a part of a computer gaming club.
- **Wireless hotspots:** access is usually free and hosted by restaurants and cafés.
- **Population Service Centers (PSCs):** these venues are newly established government-funded points of access to government services, government information, banking, and similar information. The number of PSCs is increasing rapidly, along with a range of available information and services.

- **Public Internet Centers (PICs):** these are Internet access centers hosted by NGOs and international organizations.
- **NGO Resource Centers:** several NGO development projects have created resource centers across the country. They provide limited access to ICTs and mostly serve targeted groups of users. There are about one hundred NGO resource centers and all of them offer digital ICTs. Most of the centers are not generally open to the public.
- **Educational Institutions:** schools, colleges, and universities are particularly important elements of access to information. However, the vast majority of schools, colleges, and universities have restricted access to their facilities and, most importantly, this restriction applies to libraries and computer laboratories, making them inaccessible to the public.

INEQUITY VARIABLES

The researchers visited both rural and urban locations and observed that the most important inequity variables influencing access to information in Kazakhstan include socio-economic status, education, age, gender, venue location, physical abilities of the users, and language skills. The socio-economic status of the users and potential users is one of the important governing criteria because access to ICTs is generally perceived to be expensive, largely due to the lack of adequate competition within the telecommunications sector. Rising prices, increasing inflation, and the broad economic downturn combine to reflect on the impact socio-economic status has on the use of ICTs.

Kazakhstan has a very high literacy rate at 99.5%⁶; however, the educational level of the users still remains a constraining variable in the access to information. This variable was particularly noticeable in the libraries, where students and people with college and university education are

likely to be found. This variable also was found in the PSCs, where people go regardless of their educational level because everyone needs to interact with the government in one way or another. It also was true in the PASs, which are located in places such as the offices of local officials and in post offices.

Age is another variable governing access to information. To address this variable, it was assumed that younger age groups would attend Internet cafés and use wireless hotspots more frequently, while the older populations would more often use libraries.

According to a 2006 report called the “Demographic and Migration Situation in Republic of Kazakhstan,” about 52% of the country’s population is composed of women, and gender is a limiting inequity in accessing information. Men were found to be less often inclined or less able to access information, especially in rural areas.

Data obtained from the National Statistics Agency state that there were 8,230,319 people (52.9% of the population) living in urban areas as of January 1, 2008, and 7,335,328 living in rural areas.⁷ Rural areas tend to have a less developed overall infrastructure, which may impact on the ability of rural residents to access digital information. Rural-area residents are also often more economically disadvantaged, which may prove to be a particularly important barrier to accessing technology-based information.

Although Kazakh is the official language, Russian and English are the most important languages used in ICTs in Kazakhstan, and the prevalence of Russian is said to be increasing. As a result, access to much of the available information through ICTs is denied. The Kazakh language is developed at the household level. Technological subjects, literary applications, and other uses of Kazakh are developing so quickly that much of the population cannot keep up with the pace and have a poor understanding of the “new” Kazakh. That means that the language is not being used effectively in daily life. Additionally, during the

Soviet era, the urban population spoke primarily Russian, while the people who spoke Kazakh lived mostly in rural areas.

Physical abilities make up yet another variable. The infrastructure is rarely designed to accommodate physically disadvantaged or impaired people, which means they cannot fully implement their rights and capabilities. A defining medical classification of such people is contained in the national legislation. One category of people is composed of those who are unable to move without assistance. These people are distinguished from those whose movement is significantly limited and who depend on external assistance. Disabled people from these groups cannot usually access Internet centers and most likely cannot afford an Internet connection at home. Furthermore, there is a lack of specialized digital equipment to serve these people.

The Research Process

The research process was divided into two phases. During the first phase, a draft report was prepared by the first local research team in Kazakhstan. The assessment of public access to information and ICTs focused on public libraries, PSCs, Internet cafés, and PACs. The researchers conducted an in-depth analysis of the current status of ICTs using a Real Access framework⁸ that covers access to technology, human capacity and relevance, the enabling environment, and a thorough evaluation of each venue type selected. The venue evaluations included site visits for each venue type, a survey of operators and managers, and a survey of users.

Research methods included literature and source reviews, site visits, interviews, and surveys. The literature and source reviews involved studying more than one hundred documents that included various reports from international development agencies, such as the UNDP and the World Bank, Kazakhstan government programs, local and international periodicals, and various Internet websites that discuss information society issues.

The survey process during the second phase of the study originally envisioned surveying users at 4 different venue types at 3 locations with 10 surveys completed at each venue for a total of 120 surveys. Three locations were selected: Astana, the capital of Kazakhstan represented a large city, Kokshetau, a smaller city located in northern Kazakhstan, and Esik, a small rural town located in the Almaty region of southeastern Kazakhstan.

However, the team had difficulty reaching the interview quota at some of the venues in the three selected communities. To overcome this concern and get enough respondents, six rural areas were visited instead of one. The team discovered no PAC users and found no PSC facilities in rural areas. Consequently, Almaty, the country's largest city, was selected for the PSC venue site, and thirty surveys were completed there. Generally, teams approached users as they exited the venues or, for small venues with a small number of users, the users were approached while they were accessing the services.

OVERALL COUNTRY ASSESSMENT

The researchers determined that there is a need to develop both the supply and demand sides of the information-access equation. The needed information is rarely available, and when it does exist, it is usually hard to obtain because of such factors as high-access costs, bureaucracy, distances between venues, and, most importantly, the people rarely search for such information. Thus, ICT training, public awareness campaigns, local content development, and increased competition in the telecom sector are critically important to the development of an information-based society in Kazakhstan. ICTs should play a key role when it comes to providing access to information. Services Such as e-government, e-commerce, e-education, and e-libraries would greatly benefit the Kazakhstan population. ICTs also are the most efficient way to ensure access to information in this country where

communities are separated by huge distances and where the population density is so low.

Kazakhstan has a particularly low Internet service penetration. Therefore, publicly accessible information venues are very important to the development of the nation's effort to develop an information-based society. Libraries are the most common type of public information venue, which is said to be a legacy of the Soviet era when libraries were mandatory in nearly every settlement. However, the present infrastructure is deeply outdated, with little ICT use anywhere except in the large national libraries in major cities.

A few Internet cafés exist but are not widely popular. PACs are being opened and information kiosks are being installed throughout Kazakhstan. However, most have low public awareness and lack Internet connectivity.

In Kazakhstan, the role of ICTs in public access to information is limited, and the population is marked by low levels of computer literacy and a limited understanding of the Internet. However, the role that ICTs play in accessing information is increasing. The increasing disposable incomes that many people now enjoy allow them to buy personal computers. Decreasing Internet tariffs (although still relatively expensive compared to European Union member countries) and the increasing availability of broadband Internet connectivity in large cities allow for easier access to information. Furthermore, these two factors promote information sharing and interaction among citizens.

Access, Capacity, and Environment

Kazakhstan's information access infrastructure is far from fully developed and is currently one of the more important factors hindering the access to information by individuals. The issue is compounded by the lack of competition in the telecommunications sector. Inefficient regulations do little to reduce Internet tariffs. In addition, the low levels of technological capacity in schools and

universities hinder any increases in the computer literacy levels. However, ongoing investment in the physical infrastructure, the rapid growth of mobile communications, and cheaper computers will provide better access to information in the future.

The computer literacy level in Kazakhstan was estimated to be less than 10% in 2007 while computer penetration was under 5% that year. These conditions severely limit the opportunities for public access to information using ICTs, but the government has announced that it intends to increase both of those numbers to 20% by 2010, while simultaneously increasing Internet penetration.

Only 2,000 IT specialists are trained each year, although the market demand calls for five to seven times that amount. The quality of the education in the school system is poor because of the lack of current relevant material and technical resources, decreasing numbers of qualified teachers, and openly recognized high levels of bureaucratic corruption. New projects, venture capital, adaptation of educational programs to meet real IT market demands, and attraction of former citizens who emigrated over the past decade can vastly improve the quality of IT education. Kazakhstan needs to develop a sustainable digital culture, emphasize ICT use in basic education for university students, and increase the material resources.

The lack of locally relevant content reduces the desire of many people who might want to access information that could directly influence their rights and interests. Very little content exists in the Kazakh language and imposes a language barrier. People speaking only Kazakh are significantly limited in accessing the information they need.

The political, economic, and social environment is favorable for the development of an information-based society. Rapid economic growth in recent years, high literacy levels, the President's long-term vision for technological development, and new government programs are

key driving factors towards increasing computer use and Internet penetration.

Increased government spending is producing positive results through the creation of new local content (publishing reference books and textbooks) and creating websites. There is additional funding for libraries, and investments in PSCs are creating the necessary environment for an information-based society to develop. Increases in disposable income are allowing more people to invest more time and money in educating themselves and their children. This shift in education, in turn, increases the desire for information.

Implementation of the program the government calls the “Reduction of Information Inequity and Implementation of Electronic Government in the Republic of Kazakhstan” will provide access for everyone to key government services in the near future, but is especially important to underserved and vulnerable groups.

Information Needs of Underserved Communities

When interviewed, most respondents said they use the available technologies to find various government services, education, and personal information. Very few respondents indicated that they seek current news. Many also said that this narrow view is the result of the limited computer literacy, a lack of resources, and the legacy of the Soviet-era mentality about limiting open public access to information. Another critical limitation is the underutilization of information by the people, so that even when people have access to information, a great many of them rarely take advantage of it. Further development of access, including access through ICTs, must be accompanied by activities and programs to develop the culture of information use.

The extensive corruption, often in bureaucratic circles, affects equitable access to information. Traditionally, personal connections or bribes made it easier and much faster to get documents issued.

Usually personal connections or recommendations are the quickest and most efficient way to speed up the documentation processes.

Many people who are familiar with ICT development and equity in Kazakhstan have indicated that the information in greatest demand relates to:

- Employment searches
- Information about civil responsibilities, human rights, taxes, passports, registration of land ownership and other property rights, and certifications
- Welfare allowances and compensation
- Governmental and non-governmental information about protection of civil rights and interests

Additionally, the population is interested in information on education, personal needs, news, politics, health care, and financial data. In most cases, this information can best be searched and delivered through ICTs, but in general, the existing sources of information via ICTs are very limited in their coverage and often non-existent. Additionally, the information itself is rarely updated.

Economic Policy and Regulatory Environment

The continued expansion of the economy drives increases in consumer spending, which leads to computer purchases, leading to increased Internet use and, thus, better access to sources of information. More and more businesses are becoming established as information service providers. The list includes cable and satellite-television operators, mobile telephony operators, telecommunications operators, Internet service providers, and web-hosting and design companies. Collectively, these businesses will drive the greater demands for information and communication services nationwide. However, if the distribution of wealth remains unequal, then the digital divide will increase rather than decrease.

The right to access information is not precisely guaranteed in the national constitution, but clause 20 admits the citizens' right to receive information freely. The clause goes on to say that censorship in Kazakhstan is forbidden. Furthermore, according to Transparency Kazakhstan,⁹ Kazakhstan has no specific law that ensures public access to information. The condition considerably limits human rights in Kazakhstan, because the constitution presents such a limited view regarding public access to information.

The Law on National Security has specific provisions that forbid "distribution in the territory of the Republic of Kazakhstan of printed products, television, and broadcasts of foreign mass media, the content of which undermines national security." However, without a law granting access to information, opportunities for infringement and abuse are created. Kazakhstan is in the process of drafting a law that is supposed to regulate all aspects of information in the country, including access. This law will have a significant effect on the development of an information-based society.

Kazakhstan tends to mirror Russia in terms of policy and regulatory framework. This is the case for the country's general approach to the regulation of information and development of an information infrastructure. Kazakhstan generally tries to coincide with international standards, including those regulating the ICT sphere. It characterizes the approach Kazakhstan has taken in e-signature and e-document regulations where the Public Key Infrastructure approach is used. Despite the several apparent constraints and limitations, the government of Kazakhstan usually seems to be open to international best practices and tends to evaluate its choices carefully.

Collaboration Across Venues

Some PICs and NGO resource centers have established partnerships and operational networks among themselves and with external institutions, such as government organizations and other

NGOs, but cooperation with the government agencies is usually limited to providing free access to e-government services. Regional information networks are another example of cooperation between venues. The regional network that links the central regional libraries of the East Kazakhstan Oblast area is an excellent example of this collaboration.

Cooperation between PICs and NGOs includes various computer-literacy and computer-assisted training projects carried out by NGOs using PICs. Examples of this collaboration are the training services provided by the Center for Development and Adaptation, "Phoenix," on computer literacy for medical and NGO workers.

The researchers were not able to locate any examples of significant collaboration by any of the venues serving organizations that are working with disadvantaged communities and specific groups, such as orphans, homeless, and disabled people. Disabled people and marginalized groups require particular affirmative action for them to become actively involved in an information-based society.

Opportunities exist in linking NGO Internet resource centers, PICs, and PACs with orphanages and organizations working with the disabled and homeless population to ensure their access to information. Government sponsored PACs should include these groups when promoting venues.

Buzz Factors

E-government and PSCs are two of the most openly popular concepts for the government at the moment. The president, prime minister, and other senior government officials often are seen reporting on achievements of certain milestones in the e-government implementation program, or describing how PSCs are helping in fighting corruption or reducing waiting times. However, the public has not displayed any corresponding enthusiasm and seems to rarely even understand what these two concepts exactly mean. This situation is partially due to the failure of the PSCs to

noticeably reduce corruption or cut the service wait times by any significant amount.

As for the public's lack of enthusiasm for e-government, the reason given most often is that the public does not commonly understand what e-government is. The same applies to the PSCs. Initially, PSCs were supposed to streamline procedures, improve service, and fight corruption, but as far as the majority of the public is concerned, the effort so far has failed to fulfill the promises.

Opportunities exist in the promotion of both e-government and PSCs as vehicles to improve government services and encourage public access to information. The citizens should be made aware of what e-government is and what it can do to satisfy very specific needs of each individual. Grasping the concept of e-government has not been possible among the population at large, and does not seem to be a strong possibility at this time, even though it is all about showing how e-government can help make certain processes easier.

Clear and understandable awareness campaigns should be launched using modern public relations and marketing techniques to identify what approaches might work best for a given target group. Banks in Kazakhstan have usually been very successful in positioning and advertising their products and services, and the government can learn from this experience and adopt similar tactics and techniques.

Shifting Media Landscape

GSM operators offer Internet connectivity using GPRS service across most of the nation, while using EDGE service in large cities. There are mentions of rolling out 3G services in the near future, but these services are not promoted sufficiently, and users are usually unaware of the benefits.

Apart from traditional voice services, SMS text messaging is very popular, both as a way to exchange correspondence, but also as a payment mechanism. Payment systems using SMS messages have recently appeared in Kazakhstan.

Users can avail of the systems to pay for various services, including access to web databases, such as the legal database Urist (www.zakon.kz), simply by sending a text message. It is also possible to make charitable donations, vote in various online and televisions polls, or participate in draws and other lottery-type sweepstakes.

Internet access via mobile phones and mobile Internet connectivity is very limited in Kazakhstan, despite the availability of Internet service providers and the coverage of mobile service providers. It is a possibility that services can reach the majority of the population with little investment, but that is not widely recognized or understood. Kazakhstan can take advantage of mobile infrastructure and readily progress to mobile Internet connectivity without heavy investments in fixed-line infrastructure. With the devices that are already available on the market, users across the country, and especially in rural areas, can gain access to government websites and information resources available both locally and internationally. Emergency notifications are an especially important aspect of mobile telephony that can greatly benefit rural areas.

Many government agencies have recognized the phenomenon of the Internet and the technique of information sharing through online conferences, conducting a number of online conferences in real time with the public.

There is anecdotal evidence that politically oriented opposition websites have been blocked because controversial, opposing views and information posted on the websites, as well as elsewhere in website comment sections. Most such opposition websites hosted in Kazakhstan were removed from the country. Opposition groups then advertised anonymous proxies as a way of overcoming government IP address filtering. Blogging is gaining popularity with various NGOs and opposition groups are using them as an alternative to news services.

The combination of different media in Kazakhstan includes telephone hotlines advertised

on television, music video channels that allow the viewers to shape content and vote through SMS messages, television shows that can be downloaded via the Internet, newspaper and magazine articles available online, transcripts of television interviews broadcast via websites, and a host of other adaptations.

An example of media combination is the president's annual question and answer session with the general population of Kazakhstan. Questions for the session are taken via the Internet, text messages, telephone calls, letters, e-mail, online forums, and live feeds via correspondents placed in all major towns of the country. The President's answers are broadcast on radio, television, and the Internet. This way of communicating ensures wide participation by various groups.

VENUE ASSESSMENT

The traditional sources for information related to government services are Akimats (local governments) and other executive authorities, including divisions, departments, and passport sections of the Ministry of Justice and Migration Services. PSCs are a new venue for government-related information, with the first PSC opened in 2006. These centers are designed to become single-source venues for all citizen-to-government interactions.

Libraries also have an established reputation for providing a variety of information. In many cases, they may be the only access point in a community that contains information about territorial accessibility, material resources, the presence of consultants, accessibility for disabled and impaired people, and free information services or services provided at a moderate fee.

For those people who can afford the cost, access to information through the Internet is available in the home or in the workplace. Internet cafés, computer clubs, and wireless hotspots also are gaining popularity as an alternative means to access the Internet.

PAS venues are being established as a part of the State Reduction of Information Inequity Program and provide access to e-government services, as well as to the government's Internet site, but most of the venues are still not operational. Two types of public access sites are planned under the program. The first type will include information kiosks with touch screens and built-in printers, and the second type will resemble a telecenter or Internet café with computers, scanners, printers, and other equipment. Because these venues will lack access to the web, they will probably not be widely accepted by the general public.

Information services provided to the population by government bodies are not well organized. Even though the location of such services is well known, the system that controls the services is cumbersome and makes access to information difficult. The government services, and the agencies that control them, are laced with bureaucratic red tape and widespread corruption.

Many respondents cited the lack of relevant local content as a key barrier to information access. Both the public and the government spokespersons agree that there is not enough local content, especially in the government's Internet site. The researchers also noted that the majority of the government information kiosks that have been installed are still not online, and some are not even powered.

PSCs use a single-source venue principle to offer government-related information and services, and they usually host banking, printing, and photocopying services, as well Internet access kiosks. Most PSC venues are well located in cities. Technologically, the centers are quite advanced, and some offer Internet access, digital printing, copying, and photo services. Some even have digital queuing equipment. Long queues are a significant problem for people who must interact at government offices, and ergonomics and accessibility for impaired people remain an issue.

All government services offered at PSCs assume use of government databases by the

clerks and have plans to allow self-service when e-government is rolled out. In general, the population considers the services at PSCs to be affordable. Although PSCs have banking services and government information kiosks installed, all of the respondents who were surveyed for this study reported that they used the venues primarily to obtain specific government services, such as new identification papers, passports, or birth certificates. However, none of the respondents in PSCs were aware of the kiosks and information services they offer.

This venue type is used primarily to access government information and services, and will serve to facilitate roll out of e-government services. They were not intended to be used to access personal-interest information on a wide range of topics, although they have the potential to become access points for a wide array of information, especially in rural areas.

Libraries are widely distributed throughout Kazakhstan, and there is usually a library available even in remote rural areas. They range from large national libraries that include vast collections of printed materials, audio and video content, access to Internet and electronic databases, to small libraries in rural areas that have only a limited selection of books and periodicals. In some areas, libraries are believed to be the only source of access to information, and, thus, they are considered to be a principal part of the national information infrastructure.

Informed users, such as scientists and students, as well as some NGO and business operators, frequent libraries most often. Traditionally, libraries do not publicize their services, and their services have often been quite limited. Nearly all libraries now need additional funding, but little aid is available.

Internet cafés are very important venues for accessing all types of information for all categories of users. In addition, they provide more affordable means of communication with other people through IP telephony, e-mail, and instant messen-

gers. Some provide computer gaming services in addition to Internet access, while others operate primarily as gaming clubs with a few machines allocated for Internet access. Most Internet cafés have modern computer equipment, are clean, are easy to use, and are usually well managed. Most have a consistent and regular user base.

At some of the gaming clubs in large cities, it is often difficult to find an unoccupied computer to use. Although computers used for gaming are usually located separately, even the busiest gaming clubs and their gaming sections are relatively quiet.

Internet cafés are usually well positioned to assure ready access. Despite charging higher fees than libraries and PASs, Internet cafés offer a significantly better experience for the users. They usually operate as profit-oriented businesses, and customer satisfaction is a higher priority to the owners and managers. This focus translates into providing better technologies and wider spectrum of services.

Locally planned initiatives related to public access are focused around two government programs currently being implemented. One is concerned with opening new PSCs and the development of the existing venues by introducing additional services and making them single-source venues for citizen-to-government interactions. The second program is based on the Program on Reduction of Information Inequity that is tasked to open new PASs and install new information kiosks.

Revenue Streams for Publicly Funded Venues

The government finances all public libraries, and all of the money collected by the libraries is first transferred to the government and then comes back through an annual government budget allocation. The money collected by the libraries stems from membership fees, equipment use, and Internet access fees, but the libraries cannot immediately use that money; they have to return it to the government first. They must then wait

Table 1. Strengths, weaknesses, and opportunities in key public access venues

Strengths	Weaknesses	Opportunities
Public Libraries		
<ul style="list-style-type: none"> Libraries are widespread throughout Kazakhstan Libraries are the traditional venue for access to information ICT services are free of charge to members 	<ul style="list-style-type: none"> Hours of operation Libraries do not publicize their services No programs reach out to underserved segments of the population Considered to be outdated and “not cool” Need to train staff 	<ul style="list-style-type: none"> Can become excellent venues for information access if ICTs are offered and staff are trained
Public Access Venues		
<ul style="list-style-type: none"> Government funding and support, free to use Cover most of the country Fully ICT-enabled Online government services are of high demand by the population 	<ul style="list-style-type: none"> Lack of local content Limited number of information services offered Lack of public awareness 	<ul style="list-style-type: none"> If Internet access is provided, they can become the first choice as a public access venue Additional services can be offered Increasing public awareness
Internet Cafés		
<ul style="list-style-type: none"> Operated as private commercial businesses Stable and fast Internet connection 	<ul style="list-style-type: none"> Expensive Lack of local content Location Concern by parents about safety of children 	<ul style="list-style-type: none"> Business approach ensures sustainability and higher customer satisfaction than in any other venue type
Public Service Centers		
<ul style="list-style-type: none"> Government funding and support Covering most of the country 	<ul style="list-style-type: none"> Limited number of information services offered Location Public awareness 	<ul style="list-style-type: none"> Possibility to become one-stop-shop venues Raising awareness

for the government to later transfer the allocated funds back to the libraries.

The PASs venues also are funded by the government budget through an allocation to the Agency for Information and Communication, which, in turn, funds the National Information Technologies, a government-owned entity responsible for implementing government IT initiatives. Generally, PASs do not charge fees except for those established by KazPost and Kazakhtelecom, where small fees for access are sometimes applied.

Funding for PSCs comes from a budget allocation to the Ministry of Justice, which is a part of the government budget and requires approval of Parliament. PSCs charge fees that vary in size and cover everything from issuing government identification documents to making photocopies. There are no fees associated with information services.

CONCLUSIONS AND RECOMMENDATIONS

Most of the nation’s population is unaware of the several available means to access information that would significantly improve their quality of life. A variety of well-planned and widely promoted information and awareness campaigns are an urgent need in Kazakhstan.

Public libraries do not advertise, and much of the population remains unaware of the services that their local libraries offer. A public awareness campaign is needed to inform the public about the value of the local libraries and to encourage people to frequent the libraries. A parallel campaign also is needed to inform the public about the PSC information kiosks and the services they offer. None of the respondents interviewed at the PSCs were aware of the kiosks or the available services.

An awareness campaign to focus on e-government also is needed. Most of the public does not understand the specific benefits available to them through an effectively designed e-government program, even if they are aware of the concept. Additionally, it is necessary to have all government staff involved and have them fully understand what e-government is and what principles are key to its success.

All of these public-awareness campaigns should be launched using modern public relations and marketing techniques, applying the best techniques to identify the approaches that will best suit each targeted group. Many banks in Kazakhstan have been very successful in advertising their products; the government can learn from this experience and can adopt similar tactics and methods.

There is a strong need to develop locally relevant content that is available online. To be effective, everything from news and entertainment portals to e-commerce websites needs to be developed and popularized.

Currently, the e-government portal provides a limited number of information services, and those that are available have little relevance to most of the population. The quality of these services is quite low. For example, the available information is commonly incomplete and lacks depth and substance. The language is typically difficult to comprehend. The range and quality of the interactive information services provided by e-government must be clarified and expanded, while focusing first on the services in greatest demand.

The public needs more and better guarantees that their individual freedoms are respected, including the freedom of expression, speech, and the access to information. Disabled and marginalized groups require particular affirmative action to be effectively involved in an information-based society. The government needs to identify these groups very specifically and allocate adequate resources to include these groups into all programs related to developing an information-based society.

The present Program on Reduction of Information Inequity fails to identify specifically such groups as orphans, homeless people, and the disabled as vulnerable and in need of assistance for gaining access to information, including government services. The program does not mention prison inmates with regards to increasing computer literacy levels. Yet a focus on inmates may be an opportunity to help some of them integrate successfully into the society when they are released. Government-sponsored public access sites should include these groups when targeting focus groups.

There are two principal success factors that present enormous difficulties if implemented. The first is to make certain that the demand for information exists, and, second, to ensure that relevant information can be delivered to those who need it most. The citizens of Kazakhstan are reluctant to search for information, even when it is available, because they are simply unaware that the information exists and that it can benefit them directly. The present means for information delivery are very limited. Therefore, to be successful in meeting the information needs of the population, it is first necessary to show that the information is available and that it can benefit individuals directly. At that point, it is necessary to provide the information in the most effective and efficient way, while recognizing that the delivery method will be different for different groups.

A particularly important success factor that applies in Kazakhstan is to ensure that the government is fully committed to the success of these programs and initiatives. The government in Kazakhstan has a vast array of resources and must allocate them effectively and efficiently before the country can ever expect to have an effective information-based society.

ICTs can play the key role in providing access to information. Kazakhstan already has shown signs of taking advantage of these new technologies. Services such as e-government, e-commerce, e-education, and e-libraries have many benefits for the Kazakhstan population. ICTs are also the most

efficient way to ensure access to information in this country where communities are separated by great distances, and the population density is so low. It is much easier, and certainly less expensive, to create one access point in a village, train the people to use it, and provide access to a central e-library book database than investing in physical library infrastructure, publishing books, and ensuring timely delivery of periodicals. E-government can rapidly provide services to citizens, regardless of their location, while avoiding any queues, and, most importantly, eliminating contact with government clerks, thus reducing the possibilities for corruption.

ENDNOTES

¹ Wikipedia.org, accessed at <http://en.wikipedia.org/wiki/Kazakhstan>

² Wikipedia.org, accessed at <http://en.wikipedia.org/wiki/Kazakhstan>

³ Wikipedia.org, accessed at <http://en.wikipedia.org/wiki/Kazakhstan>

⁴ National Bank of Kazakhstan, accessed at <http://www.nationalbank.kz>

⁵ Wikipedia.org, accessed at <http://en.wikipedia.org/wiki/Kazakhstan>

⁶ UNDP Human Development Report 2007/2008 accessed at http://hdrstats.undp.org/countries/data_sheets/cty_ds_KAZ.html

⁷ Kazakhstan State Agency on Statistics, accessed at <http://www.stat.kz>

⁸ For more information on the Real Access framework, see www.bridges.org

⁹ Transparency Kazakhstan, accessed at <http://www.transparencykazakhstan.org>

Chapter 25

Public Access ICT in Kyrgyzstan

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EXECUTIVE SUMMARY

The Kyrgyz Republic is a landlocked country in central Asia and borders Kazakhstan, Uzbekistan, Tajikistan, and China. The country has a land area of 196,500 sq km but has only five million people. Kyrgyzstan declared its independence in 1991 after having been a republic in the former Soviet Union. The population is heavily concentrated in just a few scattered localities, and one third of those people live in urban communities. More than 64% of the total population and more than 50% of the rural population live in deep poverty. Nevertheless, the population in general is educated and literate, and the existing social capital is relatively high. The people with the higher literacy rates tend to be those who speak the Kyrgyz and Russian languages, and this segment of the population displays a strong interest in information and communication technologies (ICTs).

Given the extreme depth of poverty nationwide, the socio-economic classes can be delineated to some degree by their regional location. People

in the northern reaches are relatively wealthier, and that area is home to the Russian minority. The southern regions are less well developed economically and are home to a number of ethnic minorities, including Uzbeks, Tadjiks, and refugees from neighboring countries. The south is also troubled by ongoing border disputes, many of which are sparked by conflicts associated with the vigorous smuggling trade.

Only 30% of the entire country is suitable for habitation, with rugged mountains surrounding a few broad, grassy highland valleys and covering three fourths of the nation. The topography of this mountainous country makes it difficult to establish hardwire networks as it blocks line-of-sight transmissions. Landline networks beyond the more populous communities are quite limited.

Rural residents often live in remote villages that are difficult to reach because of the mountainous terrain, and many settlements are isolated in the winter by deep snow and treacherous roads. Largely because of the lack of reliable and stable electric power, rural areas rarely have the technology or infrastructure for digital access to information.

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Residents of the rural areas often migrate to seek work in the larger cities, or travel abroad to other countries, such as Russia and Kazakhstan. This economically driven migration is a drain on the able-bodied, predominantly younger, potential work force, and on a generation more aware of digital services and technologies.

Given the numbers of rural residents who move to cities and abroad, there is an increasing demand for affordable and reliable digital communication. Yet, half of the rural population lives in poverty that impacts their ability to access information, especially when fees and charges are levied, as is often the case with commercial Internet centers.

The severity of the social, political, and economic conditions in Kyrgyzstan led it to be selected to participate in this international investigative study. The study was designed to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework in Kyrgyzstan. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

The researchers focused on the environment of public information access venues to determine their strengths, weaknesses, opportunities, and the specific information offered. The researchers interviewed policy and decision makers, government representatives, and NGO and other private-sector representatives concerning ICT development in Kyrgyzstan. They examined the physical infrastructure, human capital of public access venues, information content, service usage patterns, communication and knowledge production, as well as environmental factors, such as governmental policies, geography, ethnicity, and linguistics. During the fieldwork, they reviewed applicable publications and interviewed stakeholders, operators, and users from the four selected public access venues: public libraries, e-centers, Internet clubs, and information and resource centers. The research was conducted during a school and university

summer holiday, and therefore, the researchers were unable to complete as many interviews as they had planned.

A number of initiatives by government, private sector, and international organizations support the establishment and operation of public access venues. In particular, the private sector has provided resources to establish and operate Internet clubs. International and donor organizations provide support for public access venues in rural areas and target underserved communities. The staff working on the projects regularly provide support, professional experience, and necessary knowledge. With the cooperation of the stakeholders, government, NGOs, private sector, and international and donor organizations in implementing the ICT projects, several projects were successfully established and managed.

The opportunities to invest in the technological development of Kyrgyzstan are strongest with regard to building capacity in the IT sector, infrastructure, the capacities of the staff and users, and to support development of locally relevant content. In addition, much is needed and remains to be done to improve the overall policy and the regulatory environment.

Investment considerations should not be based on the number of users served, but rather on the number of people who can benefit from ICTs. The potential benefits should include employment on-site and off-site, and access to educational information online.

COUNTRY OVERVIEW

Introduction

The Kyrgyz Republic is a landlocked, rugged, and mountainous country in central Asia that borders with Kazakhstan, Uzbekistan, Tajikistan, and China. The country has a land area of 196,500 sq km, but has only five million people. The mountains surround a few broad grassy highland valleys and

cover three fourths of the nation, and only 30% of the entire country is suitable for habitation. The population is heavily concentrated in just a few scattered localities, with one third of the population living in urban communities. More than 64% of the total population and more than 50% of the rural population live in poverty (SIDA country report, 2006). Nevertheless, the population in general is educated and literate, and the existing social capital is relatively high. The people with the higher literacy rates tend to be those who speak the Kyrgyz and Russian languages, and this segment of the population displays a strong interest in information and communication technologies (ICTs). Very little content exists anywhere in the Uzbek and Tadjik languages.

Kyrgyzstan declared its independence in 1991 after having long been a republic in the former Soviet Union. In 2005, Kyrgyzstan underwent a violent and disruptive revolution (the Tulip Revolution) that started in the south and gathered momentum as it spread northward toward the capital city of Bishkek. On March 24, 2005, 15,000 pro-opposition demonstrators assembled in Bishkek and called for the resignation of the incumbent president, Askar Akayev, who had been in power since 1990. Akayev stepped down and was replaced by Kurmanbek Bakiev, who has held the office since then. Despite that change in the national administration, the country continues to be marked by political instability. A 2006 report issued by Transparency International ranked Kyrgyzstan among the twenty most corrupt countries in the world (Najbullah, 2007).

Given the extreme depth of poverty nationwide, the socio-economic classes can be delineated to some degree by their regional locations. People in the northern reaches are relatively wealthier, and that area is home to the Russian minority. The southern regions are less well developed economically and are home to a number of ethnic minorities, including Uzbeks, Tadjiks, and refugees from neighboring countries. The south is also troubled

by ongoing border disputes that commonly erupt within the widespread smuggling trade.

Although the government officially condemns press censorship, the nation's media face a constant pressure. The Kyrgyz print media and the radio and television broadcasters function under strict restraints regarding the freedom of expression, but the regulatory framework that surrounds ICTs is comparatively liberal.

Rural residents often live in remote villages that are difficult to reach because of the mountainous terrain, and many settlements are isolated in the winter by deep snow and treacherous roads. Largely because of the lack of reliable and stable electric power, rural areas rarely have the technology or infrastructure for consistent access to digital information. The topography of this mountainous country makes it difficult to establish hardwire networks because the mountain ranges block line-of-sight transmissions. Landline networks beyond the more populous communities are quite limited.

The nation's depressed economic conditions often drive residents of the rural areas to seek employment by migrating to the larger cities, or abroad to other countries, such as Russia and Kazakhstan. This economically driven migration is a drain on the able-bodied, predominantly younger, potential work force, and on a generation more aware of digital services and technologies.

Given the numbers of rural residents who move to cities and other countries, there is an increasing demand in Kyrgyzstan for affordable and reliable digital communication. Yet, half of the rural population lives in poverty that impacts their ability to access information, especially when fees and charges are levied, as is often the case with commercial Internet centers.

The severity of the social, political, and economic conditions in Kyrgyzstan led it to be selected to participate in this international investigative study. The study was designed to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political,

and regulatory framework in Kyrgyzstan. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

METHODOLOGY

Sponsored by the University of Washington, the research for this study was conducted in 2008 in two phases by two researchers under the supervision and guidance of PACT Mongolia, a non-government organization (NGO) based in Ulaanbaatar, Mongolia. The project focused specifically on the information needs of underserved communities, public access to information and communication venues, and the role of ICTs. The researchers examined the physical infrastructure and human resources at a variety of such venues, while evaluating information content and service-usage patterns, communication and knowledge production, and environmental factors, such as governmental policies, geography, and ethnic and linguistic differences.

To conduct this study, the research team took a broad-based approach that began with a literature review. They then conducted interviews in the public and private sectors with policy and decision makers, government representatives, NGOs, key stakeholders, and venue operators to determine the status of ICT access and development in Kyrgyzstan. Overall, 74 individual interviews were conducted among 65 users and 9 operators at the public access venues.

The fieldwork included examining the physical infrastructure and human capital, information content, service-usage patterns, and communication and knowledge production at public access venues. The data and investigative results were examined to establish the degree to which they were affected by environmental factors, such as government policies, geography, ethnic and cultural influences, and linguistics.

The interviews were aimed at operators and users in the four public access venue types identi-

fied: public libraries, e-centers, Internet clubs, and the information and resource centers. The research was conducted during the school and university summer holiday; therefore, there were fewer users available in these venues than are usually present.

The PACT Mongolia staff and an independent consultant conducted the research in both phases of the study. Tracey Naughton is a project director who oversaw the implementation of the project, and Ondine Ullman is a project manager with PACT Mongolia and was the research manager in Kyrgyzstan. Ullman conducted research and focused on the current development of the ICT sector to identify venues to study in depth for the fieldwork, as well as directed the interviews of the various stakeholders.

Lkhagvasuren Ariunaa also conducted research in Kyrgyzstan. L. Ariunaa is the CEO of Intec Co. Ltd, a leading information and technology consulting firm in Mongolia. L. Ariunaa has been involved in the pre-implementation assessment, implementation, monitoring, and evaluation of ICT projects in Mongolia. L. Ariunaa was involved in establishing community information and resource centers in rural Mongolia and also monitored and evaluated those centers. She was involved in conducting studies on Internet cafés in Ulaanbaatar, herder telecommunications demand, the current condition of ICTs and information needs, and the feasibility of establishing video conferencing in Mongolia. In addition, L. Ariunaa is an author for the Mongolian chapter, as well as involved in a digital review of Asia and the Pacific Islands. To successfully conduct research in Kyrgyzstan, an assistant and driver were provided for L. Ariunaa to aid in arranging appointments, support with travel in country, and to provide logistics support.

In the first phase of the two-phase study, the researchers reviewed a number of publications and sources, and the review was expanded during the second phase of the study. The documents reviewed included publications, reports and web-based resources collected in the initial phase and

augmented with the materials gathered in the second phase. In addition, it included a review of websites of government, NGO, and private-sector organizations. Overall, more than fifty documents, publications, reports, and materials were reviewed.

The research identified the four types of venues to be studied: 1) e-centers, 2) Internet access and training program centers, 3) public libraries, and 4) Internet access centers and community multimedia centers. However, it was subsequently determined that the Internet access and training program centers were no longer independently operated and had been transferred to the budget and responsibility of the hosting organizations. Therefore, the list of venues selected for study was revised to focus on public libraries, e-centers, Internet clubs, and information and resource centers.

Early in the study period, the researchers identified a number of public centers that were not classified as separate venues. Most of those centers are no longer separate projects or initiatives and the responsibilities have been transferred to the hosting institutions. The centers included the IREX centers established by the International Research and Exchanges Board and the IATP centers that had been established as Internet-access and training-program centers. In addition, there are a very limited number of other lesser initiatives that establish and support public access venues.

Centers such as the Information Center for Democracy and Media Resource Center are venues established by the Foundation for Cooperation and Support of Legal and Economic Reform in Kyrgyzstan. Another similar venue type is sponsored under the heading of Government Patent Technical Information and is included as a fourth type of public access venue. Because of the limited time available for research, and the closure of schools and universities on holiday, the Madrasa centers and other types of venues identified as candidate venues for study were not considered for in-depth study.

Data Collection

Overall, 74 individual interviews were conducted and included 65 users at the public access venues and 9 operator interviews. Four focus-group discussions were conducted among three e-centers and one Internet club.

The researchers made on-site visits to each of the public access venue types identified in the study. They visited public libraries, Internet clubs, and information and resource centers in both rural and urban areas, including the e-centers located in the Osh oblasti center and one in Karakol city. Collectively, the researchers visited 32 locations.

OVERALL COUNTRY ASSESSMENT

Venues where the public can access information exist throughout the country, and four types of those venues were selected for this study.

There are 289 public libraries in Kyrgyzstan and approximately 20% of them are equipped to provide digital services. These services often are available as the result of cooperation with national and international donors. Seven e-centers have been established in Kyrgyzstan, representing a unique project. The venues operate as profit-oriented enterprises created when certain business entities received grants to establish Internet access points to provide free Internet access and computer-training courses. They were established in locations that included some of the most disadvantaged areas of the country. The e-centers all provide free computer skills and capacity training.

Another Internet venue type is the Internet Access and Training Program Centers (IATP), administered by IREX Kyrgyzstan. All of the services at these centers are offered to users at no cost. Each user has the opportunity to access the Internet for an hour at a time twice a week without a charge.

Twelve Internet Access Centers (IACs) and one Community Multi-Media Center were established jointly by UNESCO, the Future for Information Foundation, and a governmental organization. All of the IACs were placed in rural areas to provide Internet access to geographically isolated segments of the population.

Although the general public is free to enter the public venues, authorities in the capital city of Bishkek voted to ban everyone under the age of eighteen from visiting Internet centers during school hours and after seven in the evening because of the enormous popularity of online gaming and Internet surfing – many centers operate 24 hours per day (Mambetalieva, Clampdown of Kyrgyz Youth Internet Craze, 2008). Gaming is relatively inexpensive at 10 soms per hour (about 30 US cents).

In March 2002, Kyrgyzstan declared ICT a development priority and adopted a program called the National Strategy on Information and Communications Development Technologies. The strategy is scheduled to run until 2010, and is intended to help develop a sustainable, democratic information-based society. Central to the National Strategy development program are e-government, e-education, and e-economy. The National ICT Council is primarily responsible for the program and the ICT sector, and the present Internet infrastructure development favors the two largest cities, Osh and Bishkek.

The privatization of telecommunications and services led to a competitive Internet sector, and with the rapid expansion of bandwidth, most fees have decreased. The majority of Internet service providers maintain connectivity via satellite to the Russian portion of the Internet. Between 1999 and 2005, the number of Internet subscribers in Kyrgyzstan increased from 3,000 to 263,000.

Improvements to the telecom infrastructure since the collapse of the Soviet Union have done little to improve access, and a large part of the equipment in use nationwide is outdated. A digital exchange program was introduced in 2005.

Access, Capacity, and Inequity Environment

The average official monthly salary in Kyrgyzstan is equivalent to about USD\$96, and, for comparison, schoolteachers earn the equivalent of between \$40-\$70 per month (Najbullah, 2007). This inequity is exacerbated in areas where half of the population lives in deep poverty. During the field research for this study, the research team visited public access venues in both urban and rural areas. Of all 32 public access venues visited, 10 venues were non-operational or had closed. Of the remaining 22 venues visited, the majority (68%) were in urban areas and the rest were in rural areas. Venues in the regional oblasti center were considered to be located in urban areas.

Information Needs of Underserved Communities

The majority of the people who live in rural areas more commonly speak the Kyrgyz language rather than Russian. Few users can find locally relevant content and resources in Kyrgyz on the Internet. In a related issue, the public libraries seldom have current books, publications, or resources in their collections. The funding of public libraries is inadequate, the collections are rarely updated, and the users are often forced to rely on books and publications that date from the Soviet era. Nevertheless, the directors of libraries are working to raise funds through a variety of different means. Recently, the public libraries have tried to focus on introducing more content about the culture, traditions, and customs of Kyrgyzstan. The libraries are trying to diversify in the direction of particular interests, such as automobiles, household management, and general maintenance and repairs in their respective venues.

People are able to find much more information that meets their needs in the e-centers and Internet clubs. Despite the availability of a wide range of information in Russian, the operators and users

expressed concern about the lack of information available in Kyrgyz. The information and resource centers try to fill the information gap on particular subjects or areas, such as legal information and government services.

Economic, Policy, and Regulatory Environment

In the past two years, the Republic's economic performance has become stronger; however, the ineffective governing authorities and policies combined with the widespread corruption are serious impediments to growth and development. The regulatory controls imposed on commercial business practices are oppressive. The agriculture, hydropower, and mining sectors are vulnerable to adverse weather conditions, but have remained steady while the economic base has continued to expand slowly and steadily to encompass the construction and service industries. While the average inflation rate remained low at 4.4% and 5.1% in 2005-2006 respectively, it rose to 10.3% in 2007.

The Kyrgyz government, with international donor support, has developed an ICT strategy and recently drafted liberal policies for Internet use and regulation. The government has also facilitated the development of Internet access points in rural areas and is implementing a supportive environment for ICTs in development.

Collaboration Practices across Venues and Future Opportunities

There is extensive collaboration among the public access venues. For example, the public libraries are joined under the Kyrgyzstan Library Information Consortium Association, which has more than 120 member libraries. Their activities and areas of interest include development of full-text online resources, automation and integration of library resources, development of a normative, legal base in the field, and improved professional

levels. Despite the collaboration within their own networks, libraries, e-centers, Internet clubs, and information and resource centers rarely cooperate or coordinate across the different types of public access venues.

Because e-centers are established on a franchise business model, the CIIP provides support and consultation services to the centers and keeps them abreast of the latest business-related developments. There are some clubs, such as "Shmelle" and "Neoplanet," that are part of a network of Internet clubs. For example, 16 Internet clubs are in the Shmelle club network and coordinate their activities and share information. Information and resource centers cooperate and coordinate within their own networks. In addition, the information and services provided through the information and resource centers are coordinated at the national level.

Buzz Factor

The government has stated that it currently wants to introduce and implement e-government programs and provide access to information and existing government resources to people living in rural areas. In addition, donor and international organizations support the initiatives of the government to implement e-government programs. In particular, they support projects that establish public access centers. Furthermore, both the government and the private sector favor providing Internet access and services to citizens in rural areas via distributed vouchers for a specified number of users.

Legitimate Use

When the venues users were interviewed, most of them commented quite unfavorably about the limited access to information in public access venues, blocked web sites, and the limitations placed on access time. In addition, the users were interested in having open access to specific infor-

mation, such as laws, decisions, human rights, and watching films and clips.

Some venues have established guidelines regarding what is deemed to be acceptable information or activities. For example, the Shmelle network does not allow users to play games or to visit pornographic websites while at the venues. The e-centers in Osh prioritized skill training and prohibit the users from participating in any other activities.

Shifting Media Landscape

While nine companies hold telecommunications services licenses, only six are operational. The mobile service providers offer mobile Internet services, as well as SMS-based information services, yet there are few initiatives in place that use the SMS features for any purpose other than personal communication.

More than two million users in Kyrgyzstan subscribe to mobile services, and 90% of them are listed as pre-paid service users. In addition to the pre-paid service option, there is a service called “Web cassa (cash),” whose main purpose is to offer downloaded units for about five soms (about 15 US cents) for each unit. The Web cassa service is relatively cheap, fast, and efficient when compared to the more traditional unit purchasing method.

VENUE ASSESSMENT

Despite their several limitations, the public libraries are frequently used and are usually conveniently located at or near the center of cities, towns, or villages. Most have their own building. The libraries are open to the public and generally offer access to information resources and services, extensive collections of books, publications and periodicals, and access to any available electronic resources. For those libraries that have connectivity, they offer access to the Internet and other

resources through their on-site Internet centers. There are minimal fees charged for some selected services, but the fees are affordable for most of the general population.

The public libraries are members of the Kyrgyzstan Library Information Consortium Association through which they coordinate and share experiences among themselves. In general, the libraries are funded by the government for their operational and functional costs, yet few funds are provided to them to subscribe to the latest information resources. Despite these difficulties, the libraries continue to provide a reasonable set of services to the public, especially when those services apply to the use and application of ICTs.

The e-centers were initially established through the Last Mile Initiative (LMI) project of the USAID to test the e-center concept, and the centers were placed in remote areas to offer services to the rural population. They were initially established in six locations in 2006 and expanded in 2007-2008 to include five additional centers. From the beginning, the sustainability of those centers was essential. Thus, the franchise business model was introduced, and the operators built on existing information technology businesses, enhancing them with 256 kbps DSL connections and providing services for the public. In addition, the operators follow the model and provide support to the e-centers. For example, they organize training courses on computer literacy and award-completion certificates, assist in the national promotion campaign for the e-center network, provide technical support, and offer legal and accounting consultation.

Through the LMI project, the voucher system was introduced for e-centers, so citizens can use the services without paying user fees. The services offered by the e-centers were divided into compulsory and additional services. The compulsory services include Internet access and skill training for underserved people, according to the agreement with the LMI project, while the additional services refer to printing, copying,

laminating, and selling pre-paid phone cards. The CIIP representatives stated that they plan to introduce additional IT-based services, such as distant training, the exchange of agricultural products through a process called an online agricultural stock exchange, online health services in remote areas, and micro-credit services.

Although there were no firm or specific data available to the researchers, some sources have estimated that there might be at least as many as 6,000 Internet clubs in existence, all of them profit-oriented private businesses. Internet clubs are found in all of the larger cities and in some of the towns and villages and they are clearly one of the most popular public access venues. The usual services offered by the clubs are Internet access, printing, scanning, copying documents and files, downloading music and movies to CDs and DVDs, and IP telephone and unit uploading capabilities.

Access, Capacity, Environment for Venues

The Internet clubs are typically located in places that offer easy access to the users. On average, an Internet club contains 8 to 25 computers, a printer, copier, and scanner, and some of the clubs also are equipped with web cams. Many are equipped with a DSL connection. The most common operating hours are from 9:00 am to 7:00 pm, although a few are open 24 hours. Typically, they charge between 30 to 40 soms per hour (about 30 US cents) during the day and some offer a flat rate of 60 to 70 soms for Internet access from about 10:00 pm to about 7:00 am.

The e-centers are located at the public access venues, and most are positioned near the center of the community. On average, the e-centers have between five and ten computers, a printer, and a copier. The e-center in Nookat had a web cam that was used for communication with people living in other countries. The e-center operating hours are usually from 9:00 am to 7:00 pm, and they usually have a DSL connection to the Internet.

They charge about the same user fees charged by the Internet clubs. In addition, the e-centers conduct skill training on the use of the computers, Internet browsing, and e-mails. None of the e-centers have an in-house capacity to conduct this training; they hire teachers, lecturers, and students to teach the users.

Public libraries are usually located near the center of the cities and have their own facility and a number of staff members to help people use the library services. Because nearly all the libraries have only a limited set of computer-related services, not many librarians are proficient in using computers. The libraries are equipped with extensive collections of books, publications, and printing materials, and a few have computers they use for cataloguing and title searches. A few libraries offer fee-based computer access for certain services, such as the Toktom legal information database.

The information and resource centers are usually equipped with three to five computers connected to the Internet along with a printer, copier, and scanner. They offer a collection of materials whose topics are most often related to the agendas of the information and resource centers. These centers are usually open from 9:00 am to 6:00 pm. The majority of the centers have the Toktom database free, or, in some cases, for a small fee. Consequently, the information and services offered are affordable for most of the population.

Revenue Streams for Publicly Funded Venues

The government, donors, and international organizations implement projects to support public access venues. Public libraries receive funding both from central and local government levels, while the majority of the information and resource centers obtain funds from projects established by international and donor organizations. The e-centers are funded mostly by privately funded institutions, and, in general, provide information

and resources to citizens in rural areas. The LMI project has supported information and services venues for people in remote areas under subsidies in the form of the vouchers.

Case Examples

The Republic Library for Youth and Children records more than 200,000 users annually. It has a collection of 500,000 books and other publications, 400 different types of media resources, and contains 9 departments. About 500,000 of the books and publications are ready annually, and in addition to providing traditional library information and services, the facility hosts a Development Information and Resource Center.

The e-center in Ivanovka is located in the former utility services building, and occupies three rooms. At the entrance, the operator sells units for mobile phones, sells phones, and enables access to computer use. The second room houses a computer center with eight computers and a facility for IP telephone service. At the time the researchers visited the center, there were four people coming to use the IP telephone service, two people were using the computers to access the Internet, and at least ten people came to upload units to their mobile phones.

The Internet club in Karakol is located across the street from the University of Issyk Kul. The center has 12 computers, a scanner, a printer, and a display offering CDs. In addition, it has a small coffee shop that sells coffee, tea, soft drinks, and a few snacks.

A venue named the Public Information Center of President Administration of Kyrgyz Republic was established in 2005 as an independent entity, and the facility has a staff of 14 to 16 people. The center was established with the combined support of UNICEF, the Soros Foundation, and others. The venue includes an Internet center equipped with ten computers and a printer available for use without charge.

SUCCESS FACTORS AND RECOMMENDATIONS

The information needs of the underserved communities in Kyrgyzstan relate typically to educational services, government services, and current news, although many other needs are apparent. The population also needs information about common subjects, such as health care, government policies and initiatives, financial interests, market conditions, small business practices, weather conditions, and entertainment. There are only a few places that offer the opportunity for people to access information and services, except in those localities where e-centers or information and resource centers exist. The technological capacities of the public are inadequate and require extensive capacity-building programs, especially in the underserved communities – ICTs can play a leading role in helping the public to access information and communications.

More information and resource centers are needed in rural and remote areas. There is a lack of locally relevant content available in all of the venue types, and hardly any of the present content is offered in the appropriate languages.

The empowerment of underserved communities can be aided to a great degree via mobile telephone and online services. The existing mobile phones are currently used as a means of communication, yet no public information is disseminated through them. Therefore, the feasibility of developing and expanding mobile content and introducing it to rural communities should be studied. Considering that the banking system is developing quickly and online banking services will soon be offered, this development presents new opportunities for commercial enterprises to purchase and sell goods across a broader market.

The government needs to make a greater effort to deliver online services. At present, the population can find answers to many of their questions, but there no government services are delivered online. The government should consider introduc-

ing online services immediately and offer people the opportunity to become familiar with ICTs by using the technologies to get passport extensions, update driver's license information, and review social services.

Recommendations

The following is a listing of specific recommendations that emerged from this study:

- Provide greater support for the entire ICT sector by rigorously enforcing the established legal and regulatory documents, supporting the infrastructure development nationwide, introducing capacity building among ICT professionals, and reviewing the training and education of the ICT specialists. There is a strong need to use ICTs to provide access to public information, especially to those people living in remote and rural areas. This need can be met through existing resources, but only if the public access venues are enhanced and more venues are placed in smaller administrative units.
- There is an urgent need for capacity building among the government officials through training, seminars, workshops, and conferences. The government officials must recognize the opportunities and benefits that can develop by using ICTs to deliver government information and services to the public.
- Online relevant content, online services, and online information resources require greater development and support. Despite the availability of some online content, there is a demand and a need for more content and services, especially in the underserved communities.
- The development of locally relevant content must be based on the specific needs and demands of the public. At present, the

Kyrgyz people often have to access and use Russian language content. While there is some content in the Kyrgyz language, it is sparse. To be of any significant value to the Kyrgyz people, projects must be established and supported to develop, maintain, and update Kyrgyz language content.

Recommendations for Further Studies

A feasibility study is highly recommended to determine the needs and demands of the local population for information and services they can access through ICTs.

The researchers recommend conducting a study into the public perception of new technological information access methods versus traditional access methods, and to determine how people might benefit from using technologies to improve their lives. The information most often accessed usually comes from external sources. It would be advantageous to develop locally relevant content.

The Kyrgyz people are typically very active in the political, social, and economic development of the country. Developing two-way communication links for discussion and online forums involving the public and government representatives would be valuable.

Despite the fact that the application of ICTs is developing rapidly, no unified report exists on the progress of that development. It is, therefore, not possible to identify the current status of ICT development. It would seem important to establish a means to measure ICT development on a regular basis.

CONCLUSION

There are initiatives in place to support public access to information and resources. Nevertheless, there is a need to enhance and to make greater investments in this area. This investment includes,

but is not limited to, building the capacity of human resources, developing a favorable legal and regulatory framework, and delivering information and services to the population adequately, on time, and on demand. There are opportunities for cooperation across different public access venues so that information and resources are made available in public libraries and through Internet clubs, ensuring underserved communities can use the legal databases available in information and resource centers.

Despite a number of initiatives providing support for public access venues, there is little coordination and cooperation among the various organizations, institutions, and initiatives. It is important to identify the specific information

needs of citizens and how they use it. Therefore, the current research project was necessary to identify the existing types of public access venues.

Future research should explore the possibility of using the existing resources and potential in the country to provide a better way to deliver information to underserved communities, especially in the rural regions. In addition, the study results should be made publicly available to different stakeholders who can examine possible opportunities to cooperate, coordinate, and implement projects. Information and services need to be delivered in ways that are more efficient, far reaching, and in greater depth, and which will better address the needs of the population.

Chapter 26

Public Access ICT in Mongolia

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EXECUTIVE SUMMARY

Pact Mongolia conducted a study into Public Access to Information and Communication Venues in Mongolia between January and August 2008. This project was conducted under the auspices of the University of Washington, with Mongolia as one of 25 countries studied. The research examined public access to information venues and the role of information and communication technologies (ICTs), with a specific focus on underserved segments of the population.

As the second largest landlocked country in the world, Mongolia lies between Russia and China, with a population estimated in 2007 to be 2.6 million people, according to the National Statistical Yearbook. Thus, Mongolia is the least densely populated country in the world. Half of the population lives in or near the capital city of Ulaanbaatar, and the remaining population is scattered across twenty-one provinces called aimags.

The study was completed in two phases. The first phase, which was conducted from January

to March in 2008, and researched five venues – public libraries, cybercafés and Internet centers, Khan Bank Information Centers (KBIC), Child and Family Centers, and telecenters. Following a global research workshop held in June 2008, the research into four of the five venues was deepened. Child and Family Centers were excluded from the final review when it was determined they function mainly as community development centers and not as public information access venues. Phase two began the fieldwork and was completed between April and August 2008.

The government of Mongolia recognizes the value of ICTs and has taken steps to ensure its development application. The prime minister has established and chairs the government's Information and Communications Technology Agency (ICTA), through which e-government services are now available. While policy has been created, there remains a gap in the development of grass-roots initiatives that allow the local populations to access and use ICTs.

Geographic location heavily impacts the public's ability to access information in Mongolia. Non-urban populations, including herders who

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practice a nomadic lifestyle and the residents of often-remote rural settlements, are at a disadvantage in receiving and being able to access current information and digital services. Exposure to the Internet and user capacity remains low, largely due to the limited number of public access Internet points in these areas. Libraries are unable to meet the information needs of users with their outdated materials, crumbling infrastructure, and the lack of digital services.

The conceptual understanding of users with regard to the value of information, the right to seek information, and where to ask for information remains underdeveloped in Mongolia, and is seen as a common post-Soviet legacy. Public awareness campaigns are needed to highlight the rights of users to access information and to state where information can be found.

The rapid penetration of mobile telephony, and the very widespread use of mobile devices in Mongolia, is testament to the ease with which Mongolian's interact with and absorb new technology. This reality further points to the need for improved communications and information delivery mechanisms. When coupled with the country's high literacy rates, the increased use of digital technology points to an even greater need for a framework that supports physical access and capacity development.

INTRODUCTION

Country Overview

Mongolia is three times the size of France but contains little arable land. It is the largest landlocked nation and the least densely populated in the world. Approximately 30% of the population is nomadic, with herders following seasonal migratory routes in search of pasture for their livestock. The Gobi Desert covers the southern portion of the country, while forests and mountains are found in the north, and vast steppes stretch across the central regions

of Mongolia. Animal husbandry continues to be a primary source of income for much of the population, but the country is rich in untapped natural resources including gold, coal, and copper, and these extractive industries are poised to usher in a new phase of economic development.

Mongolia is divided into twenty-one administrative units known as aimags. Each aimag has an aimag capital, in which health care, government, and administrative sites are located. Aimags, in turn, are divided into soums, and soums into baghs, which are the smallest administrative units. There are between fifteen and twenty soums in each aimag, and there are 330 soums and 1,500 baghs in Mongolia.

Mongolia underwent a transformation from socialism to democracy in 1990, and since then, the country has become one of the most stable democracies in Asia. There are still issues regarding freedom of the press and media impartiality, with ownership issues paramount in limiting pluralism, diversity, and freedom of expression. Many media channels are owned by sitting politicians. Low levels of professionalism among journalists are another factor contributing to the poor quality of information.

Following the national election in June 2008, a state of emergency was declared after violent protests erupted in the center of Ulaanbaatar. Protesters made allegations of vote rigging and corruption by the winning party, the Mongolian Peoples' Revolutionary Party (MPRP). The state of emergency included the closure of all private television stations, with the state broadcaster remaining the only channel on air. Members of the foreign press were banned in a stark clampdown on information flow.

The majority of the population is Khalkh Mongolian and speaks the official language, Khalkh Mongolian. There are a number of ethnic minorities in the country, including Buriad, Bayad, Durvud, Uriankhai, Uuld, Khoton, and Barag. The largest ethnic minority group, the Kazakh, numbers about 7% of the total population, and

most live in the far western part of the country. Few printed and electronic materials are available in minority languages.

Ulaanbaatar has a Russian orthodox church, Buddhist monasteries, and a Catholic cathedral. Religious tolerance in Mongolia is high. While Buddhism remains the predominant religion, several small Christian groups are active across the country. The Kazakh minority population in western Mongolia is Sunni Muslim.

On the whole, Mongolia enjoys a relative degree of gender equality, though not in a western sense of feminism. Two thirds of all university graduates are female, and it is more often young men rather than women who are not able to gain a secondary or tertiary education because so many men are needed to tend the herds.

Mass internal migration has produced a phenomenon in which almost half of the population lives in and around the capital city of Ulaanbaatar. Many of the people who flock to the city have been driven to do so in search of employment and economic opportunity. Others come to access educational institutions or medical services that exceed those offered at the aimag level. The result of this continued influx is the steady growth of the peri-urban areas surrounding the city. These areas, known as the “*ger*” districts, lack adequate sanitation, access to water and electricity, and are often on the fringes of awareness and the information campaigns in Ulaanbaatar.

Geographic location bears a significant impact on a user’s ability to access information and digital technology. There is no free public access to information venues in the non-urban areas, and few venues offer Internet access. The long distances from settlements to the places where the nomadic families live pose a great disadvantage with regard to accessing to information, especially digital information. Quite often, the infrastructure to support digital information services is either weak or absent in the most remote areas, and the

herding population does not have a high level of technological literacy. Moreover, many rural households have no electricity, or have electricity only for a few hours each day whenever it can be generated. For those segments of the population that do access the Internet, there is a lack of relevant content and little in local languages. While Internet users are able to access news sites in Mongolian, they face a difficult struggle to find Mongolian language websites that meet their information needs.

Methodology

The Pact PACT? And what does it mean?] Mongolia research team has a broad research background that spans Mongolia, Central Asia, Europe, and Africa. Tracey Naughton, who led the team, is an information and communications specialist who played a lead role in the United Nations World Summit on the Information Society (WSIS) and chaired the WSIS Media Caucus and the Civil Society Bureau.

Ondine Ullman has lived and worked in Mongolia for more than six years and is an educational specialist who has worked in rural areas to develop educational standards. Lkhamaa Hishigt, a program coordinator at Pact Mongolia, has many years of research experience in government and industry in Mongolia and Russia. Chimgee Batmunkh has worked in development for nearly a decade at the grassroots level, collecting data from underserved and marginalized segments of the population, and initiated and led the data collection processes.

A broad range of documents, sixty in total, were explored as part of this research process. Among these documents were country-specific ICT reports, regional reports, ICT landscape reports, Mongolian laws and regulations, media freedom reports, and PowerPoint presentations and reports from the Information and Communication Authority of Mongolia (ICTA).

Venue Selection

The five venues researched under the first phase of the project were public libraries, telecenters, cybercafés and Internet centers, Khan Bank Information Centers (KBIC), and Child and Family Centers (CFIC). The four venues in the second phase were public libraries, telecenters, cybercafés and Internet centers, and KBICs. The World Vision International Mongolia Child and Family Centers were omitted from the study because their role in community development focuses on issues such as domestic violence, child health, and family development, and are not available to public access.

There were approximately 1,101 registered educational institutions across Mongolia in 2007, according to the National Statistical Yearbook, and include primary and secondary schools, state and private universities, and tertiary education facilities. One of the Soros-funded telecenters is located within the Mongolian National University. The exact number of educational institutions offering digital services is unknown as educational institutions were not included in this study. Those institutions primarily serve the needs of students and are not open for public access to information. The number of wi-fi spots is increasing in Ulaanbaatar, and they are typically located in restaurants and cafés in the center of the city. However, these also were excluded from this study because people without laptop computers, or the financial means to access the establishments, are unable to use this service.

Inequity Variables

Currently, Mongolia has the highest inflation rates in East and Central Asia, and 18.1% of the population exists on less than US\$1 per day. Consequently, for many people, meeting the daily cost of living precludes nonessential expenditures, such as Internet access fees or library charges. Rural residents and those persons living in the

peri-urban areas tend to be even more economically disadvantaged.

The majority of the country's Internet cafés, as well as three of the four free public access Internet points in Mongolia and almost all wi-fi spots, are located in Ulaanbaatar. The two largest libraries in the country are the Metropolitan Library and the National Central Library, both based in Ulaanbaatar where they are the responsibility of the Ministry of Culture. There are more than sixty Internet cafés in Ulaanbaatar, most of which are located in the center of the city.

Mongolia has approximately 171,588 nomadic households, and these people commonly live and work far from soum centers, and can access soums centers only by horse or motorbike in very difficult conditions. Clearly, it is difficult to reach this population segment with printed information. Radio broadcasts have been the dominant means of disseminating information. Increasing numbers of nomadic families are investing in alternative energy generators, such as solar panels, allowing access to continuous radio and television programming. Television is fast becoming the preferred electronic medium. Although cell phone coverage is rapidly expanding, people in the remote areas within the soums are not always able to access the networks.

Gender in Mongolia is not a defining factor in accessing information. On the whole, Mongolia enjoys relative gender equality, although not in a western sense of feminism. It is often young men who are unable to access a full education because of economic imperatives, but the literacy rate in Mongolia is high at nearly 98%. Following the transition from the Soviet system to a market economy in 1990, younger boys, and, less often, young girls, were removed from schools to support the family by following the herds. Illiteracy or semi-literacy prevents many people from using technology to the same extent as their more literate peers, often leaving them with little confidence to tackle text-based technology.

Mongolia has a young population, with 50.4% of the population twenty-four years old or younger. For many of these younger citizens, technology such as mobile telephony, computers, and the Internet is a norm, even in areas outside of Ulaanbaatar. Older generations have been quick to adapt to technological innovations and changes, as is evident by the fact that cell phone subscribers now exceed 82% of the population aged ten years or more. Nevertheless, many lack the computer skills that would allow them to access information via the Internet.

Khalkh Mongolian is the official language of the country and is spoken by 90% of the population. Approximately 7% of the population is ethnically Kazakh, and their native language is Kazakh. Little printed material is available in the Kazakh language and the limited radio broadcasts from the local FM radio station based in the aimag centers may not reach the outlying areas. The majority of the national newspapers are in Mongolian, but a few are published in English and Russian. The younger generation of Mongolians has an exposure to English, and English language knowledge among this generation is increasing, predominantly in the larger urban areas. Older generations may be fluent in Russian, but tend not to use ICTs to the same extent as their younger counterparts. There are a number of additional ethnic minorities in Mongolia, and, although nearly all speak Mongolian, there are virtually no publications addressing the needs of these minorities in their own languages.

There are only two free public access Internet points in Mongolia for visually impaired users, and both are located in Ulaanbaatar. Consequently, visually impaired people in the rest of the country are at a disadvantage with regard to information access. At both of the two free access points for these users, the staff lacks the technical competence to adequately assist potential clients with queries, or to maintain and repair equipment. Public information access points, such as libraries, do not have the existing infrastructure,

wheelchair ramps, elevators, and wide book aisles to accommodate disabled users. Most library staff members lack the technical skills to assist impaired users and users with special needs. Historically, town planning has not accommodated access for the physically impaired, or people with mobility issues. Much of the infrastructure is old and in need of repair and sometimes is dangerous for visually impaired people. Older buildings, where government offices and state amenities are situated, seldom have elevators or wheelchair ramps.

Data Collection

The research team conducted user and operator surveys in both rural and urban areas of Mongolia. The locations were selected as suggested by the University of Washington's research mandate for user surveys and operator interviews, and were designed to encompass geographic and linguistically diverse areas in which the specific venues operate. The locations were selected to encompass relevant socio-economic variables, such as distance from Ulaanbaatar, remoteness, and poverty levels.

The research team traveled more than 2,200 kilometers, often across rough terrain, to gather data. They interviewed 25 individuals from the government sector, non-governmental organizations (NGOs), and private organizations. In total, the research team conducted 15 focus groups across the 4 venues in a number of different locations. The team conducted 33 site visits covering urban, peri-urban, and non-urban venues at city, aimag, and soum levels. Each visit was the result of careful planning and took into account geographic location, linguistic and ethnic diversity, socio-economic status of the local community, and the available facilities. The areas visited included soums and aimag centers in six aimags, as well as the districts of Ulaanbaatar. The respondents were sometimes reluctant to provide information to the researchers. This reticence is not uncommon in the post-Soviet context, especially among

older segments of the population, where mistrust and fear of questions is an extended legacy. As a result, the researchers were compelled to interview a greater number of younger respondents.

OVERALL COUNTRY ASSESSMENT

Public Internet access in Mongolia is underdeveloped, with only 20 public access Internet points in 330 soums across the country. None of these venues offer free Internet access, and the technical capacity of the users remains low. Inadequate training and a lack of opportunities to interact with computers combine to create an environment in which fewer local residents are able to access Internet services, even when the services are available.

The limited free public access Internet points reduce access by peri-urban, *ger* district, and rural residents because they cannot afford the fees. Public libraries, especially at the soum level, need extensive rejuvenation, including physical repair and stock replenishment. Updated printed and electronic Mongolian language materials should be made available to readers, and comfortable reading environments, along with current, relevant, and interesting reading materials, will help the libraries draw local populations. Aimag and soum libraries do not have digital technology available to help them catalogue resources, track activities, or provide links to other libraries.

The Mongolian public is inadequately aware of the value of information or the rights of each person to seek information. Compounding this issue is the continuing belief that information represents power that is a legacy typical in the post-Soviet context. A lack of creative thinking on cross-media opportunities results in reduced opportunities for the public to access information conveniently and within economically viable parameters.

Access, Capacity, Environment, and Inequity Environment

Mongolia has rapidly adapted to mobile technology, as is evident by the rapidly increasing number of mobile phone subscribers. For users who live in remote areas or areas distant from the soum centers, mobile technology offers a cost-effective and accessible means to gain information. Mobile phone service providers, such as G-Mobile, now offer mobile Internet services accessible to anyone living within their coverage area. However, there is limited computer ownership among the underserved segments of the population, including those in the non-urban areas.

Only a limited number of Mongolian language websites are available for Internet users, and there are no known localization projects in Mongolian, or in any of the ethnic minority languages. The provision of one laptop and one mobile Internet device per *ger* district would help to bridge the digital and information gap experienced by many remotely located families and rural residents. This initiative would have to be supported by a corresponding development of user capacity. Currently, there is limited computer ownership among underserved segments of the population.

Rural populations have little access to current printed information and must rely on radio and television broadcasts, and, increasingly, the Internet, to access timely and current news. A number of Mongolian language news sites allow Internet users to access daily information. Although e-government services and portals exist, less than 8% of the users interviewed for this research identified government services as information they seek from the venues they use.

The data transfer timeline is set to facilitate Internet access in all soum centers by the end of 2009. This achievement will strengthen the framework for increased Internet access points in rural areas, but will need to be supported with the development of user and operator capacity, affordable venues, and localized information.

Information Needs of Underserved Communities

The population in Mongolia can realize numerous benefits from using the public access venues. Along with e-government services, they could receive legal information, news updates, human-rights and gender-issue information, civil society forums, and impartial news reporting. The herding and rural business community would benefit from weather updates, forage forecasts, business capacity building, basic business skills, and market price information. This access to information would help to stimulate rural business opportunities, empower herders to sell their commodities and livestock for fair prices, and to plan activities, such as pasture moves and hay purchases. Also, the information would help herders prepare for and work to mitigate during natural disasters.

E-banking services, market and commodity-price services, daily news, and current affairs would benefit disadvantaged groups and the population at large. Bearing in mind the impact of the transition to a market economy from a centrally planned economy that offered guaranteed employment and a steady income, it is to be expected that the need for information about skills and business training, such as business-plan development, marketing skills, best business practices, and partnering and networking opportunities is a priority.

Given that many of the *ger* district residents are displaced and seek income, skills retraining, and information regarding job opportunities, they may be unaware of their civil and legal rights. The availability of free access points and computer skills training would empower many of these residents through increased knowledge and access to information.

Since 2006, registration for all university entrance exams and payment has to be submitted online. Online shopping and banking are rare in Mongolia and unfamiliar to most of the population. Online activity is even more difficult for

non-urban residents who do not live near a public access Internet point, who have had little chance to interact with computers, and who generally lack computer literacy skills.

Economic, Policy, and Regulatory Environment

The national fiscal environment is constrained and lacks an equitable formula or process for resource allocation. The infrastructure, policy, regulatory, and legal environment favors access with regards to ICTs, but when the market is left to develop access at a local level, expertise is limited and not joined to social or cultural imperatives. Historically, social and cultural imperatives were limited to Soviet priorities, such as theatre, ballet, and classical music. In addition, matching resources were allocated through determinist statistical analysis. Mongolian management of the economy has not shown the capacity or impetus to implement a more liberal approach. However, interviews with key policy makers demonstrated a willingness, if not a relevant, implementation expertise.

A vertical planning approach exists in Mongolia. Each department sits alone with no connection at the same level or effective communication among departments. Rural government departments are connected to the same departments in central government in a straight upward line. Ideally, there should be a horizontal means to communicate and plan across government departments at all levels. This process should begin at the local level and involve the community in planning and establishing priorities. Libraries, as state-funded entities, are at the mercy of this system, with the result that the already inadequate funding is not allocated to meet real needs.

Mongolia is destined to become one of the world's foremost mineral exploration and mining countries. Mongolia has some of the world's largest deposits of coal, copper, gold, uranium, and iron, as well as other less-valuable ores. Currently, 30% of the GDP comes from mining operations

and the figure is increasing annually. Seventy-two percent of industrial output and 76% of exports are attributed to mines. Mining will continue to be the greatest contributor to the national economy at least until 2050.

In 2004, the government established the Information and Communications Technology Agency (ICTA). The ICTA, chaired by the prime minister, is charged with supporting ICT development in the country, while also coordinating ICT-related initiatives. The e-Mongolia program was launched in 2005 to develop Mongolia into an information and knowledge-based society through the integration of ICTs in all sectors of society. The e-Mongolia Master Plan has 6 program areas and 16 objectives, with the implementation of the objectives moving steadily ahead. The government recognized and stated the importance of ICTs and their continued development with the planned establishment of a National Committee on Integrated Registration System in January 2008, also chaired by the prime minister.

The government of Mongolia has illustrated its commitment to making Internet access more available to the population and, in doing so, stated its belief in the value of the Internet. The establishment of the ICTA and e-government services, along with the recent addition of a fourth mobile phone service provider, further strengthens the government's resolve to open up information and communications. By lowering the prices of computers, the government facilitated increased buying power for those who wish to purchase hardware. The decrease in connectivity fees has also indirectly supported the increase of public Internet access points. However, the government has implemented few direct projects to increase public access to the Internet, or to develop local content.

The total available bandwidth increased from 78Mbps in 2004 to 247 Mbps in 2006. In 2004, most Internet service providers (ISPs) were using VSAT to access the Internet, but that was expensive. As of 2006, a unified gateway was opened and

facilitated a dramatic reduction in cost. ISPs have since adopted landline usage, which has reduced costs tenfold, compared to 2004. Consequently, the costs for local Internet users decreased by a third of the 2004 price.

Collaboration Practices and Opportunities

There has been active collaboration among Mongolian government institutions, bilateral donors, international governments, and local and international donor organizations in the roll out of digital ICT to public access information venues. However, interaction among public access venues is not prevalent in Mongolia.

Some collaboration has resulted in the development of relationships between venues, and in these cases, public information centers have been installed in existing libraries or cultural centers. Examples include the establishment of a telecenter in the Darkhan public library and certain KBICs in schools, cultural centers, government buildings, and libraries. Khan Bank works closely with the local soum government to establish the KBICs. The soum government needs to find a venue for the centers to be established, while the Bank focuses on the set-up expenses. The establishment of these venues strengthens and supports the work of the libraries and cultural centers and provides Internet access.

Buzz Factor

Many Mongolians, especially younger urban people, view Internet centers as places where they can gather, chat online, and search the Web. User fees at Internet centers and cybercafés range from 500 MNT to 600 MNT (US\$0.43 to US\$0.52) per hour. These rates are affordable to a vast proportion of users, especially in areas such as central Ulaanbaatar, where disposable income levels are highest in the nation. With the current inflation

levels, an hour of Internet access is often cheaper than a loaf of bread.

Two mobile phone service providers offer mobile Internet services to users within their coverage areas. This service is used predominantly by people in the aimag centers, while fewer soum and herding families use the services. A larger number of people at the aimag center level have the technical capacity and the access to hardware, as well as the proximity to the service. The result of these services is a sizable increase in the number of non-urban residents who are able to surf the Internet and access information.

Legitimate Use

In Mongolia, communication has become a prime function of Internet use. In cybercafés and Internet centers, chat communication is the predominant activity. Within the Mongolian context, the use of the Internet as a voice and text-based communications tool is quite acceptable. Many people in urban and non-urban venues access Internet services to communicate with people in other parts of Mongolia and abroad, using applications such as Yahoo!, Messenger, and Skype.

Some Internet centers and cybercafés offer Internet access, as well as gaming services, to users. Users who seek Internet access often complain that the gamers are noisy and distracting. They do not refer to gaming as “trivial,” rather they believe that it should be confined to specific gaming centers so that it does not distract users who are trying to concentrate on other uses.

Shifting Media Landscape

Television continues to grow as an information and entertainment medium, powered by increasing numbers of families who own alternative energy generators. Television ownership more than doubled between 2002 and 2007.

There are more than one million mobile phone subscribers in Mongolia, and the coverage is

anticipated to expand to include every soum center by the end of 2009, with a corresponding increase in the number of users. Mobile phones provide a unique opportunity for rural residents to communicate with friends and relatives, and also to receive and transmit information. Many mobile phone service providers offer services that allow users to access weather reports, commodity price information, entertainment, and news via SMS. Since 2005, the number of mobile telecommunication service providers in Mongolia has doubled from two to four. Increased competition has driven user costs downward and mandated increased coverage.

VENUE ASSESSMENT

Overall Venue Landscape

There are 357 public libraries in Mongolia. Libraries hold a traditional position as venues for studying, developing intellect, and reading, but the general public does not commonly perceive them as electronic or Internet information sites. A public library is located in each aimag, soum center, and district of Ulaanbaatar, and these facilities are often the only information resource centers available to local populations.

Libraries suffered during the transition phase since 1990 through inadequate state funding and a crumbling infrastructure. The result is a severe lack of current materials coupled with an uncomfortable environment created by inadequate heating in the winter and poor summer ventilation. Much of the furniture needs to be replaced. Library users report that libraries are generally unable to meet their information needs. Only 2.5% of Mongolia's public libraries offer digital services, and the available printed materials are usually outdated.

Organizations, including the Soros foundation and the UNDP, have developed telecenters in many areas in Mongolia. Some of these telecenters have proved to be sustainable in spite of

various challenges, and others have been forced to close. Telecenters were among the first venues that opened up information and Internet access to aimag centers, but there are no telecenters at the soum level. Although the fees levied by telecenters are lower than those charged by commercial Internet centers and cybercafés, the commercial venues tend to offer more services and extended operating hours. Telecenters are now faced with increasing competition from local Internet centers and cybercafés.

Many of the Telecenters were established more than a decade ago when public Internet access was far more limited, and access to information was a nascent idea. They were established in larger cities and aimag centers, which, unlike the soums, were connected to the backbone cable. The centers were established through donor funding and many have since closed. Currently, eight telecenters operate across the country. Many of the centers were unable to generate enough income to meet their operating costs and others lost their donor funding.

There are increasing numbers of for-profit and privately owned cybercafés springing up around the country. Of the 105 registered entities, approximately 60% are located in Ulaanbaatar. It is a challenge to pinpoint the exact number of cybercafés because many operate outside the legal requirements for business registration. Regardless, these venues constitute a major public information access point for the population. In some rural areas, they are the only public Internet access points available, and with the growth of the data-transfer backbone across Mongolia, their numbers are set to increase.

Khan Bank Information Centers (KBIC) provide an interesting model in which the private sector has established thirteen Internet centers in some of the most economically disadvantaged and remote settlements in Mongolia. Motivated by corporate social responsibility, and in the context of the lack of access to digital information in remote areas, Khan Bank began planning the KBICs in 2005. Plans for 2008 include the rollout of an

additional eight venues. KBICs are proving to be essential information and communication access points for the local soum populations.

The hourly rates charged by the KBIC are approximately half of those charged by Internet centers and cybercafés in aimag centers and in the cities. Soum residents access the soum center far more often than the aimag center. This center brings the Internet at the KBICs closer to them, although many will still have to travel considerable distances in extreme weather to access the services. The capacity levels of users remains low. While the KBICs face constant challenges in securing adequately trained staff, they do try to offer basic computer skills training for local users as often as possible. In doing so, the centers need to be more cognizant of community patterns and activities, and utilize a best-practice community approach when establishing the centers. This approach will mitigate against the number of local residents who feel they are unable to attend user training sessions because the scheduled times are incompatible with local activities.

An example of weak community practice and planning was evident in one of the KBICs the research team visited in Khongor soum. Most of the residents in Khongor are involved in agriculture and spring is one of their busiest times as they prepare the fields and plant their crops. The local KBIC offered training sessions for the population during that period, and most residents were unable to attend. Many of the local population felt that Khan Bank had not given appropriate consideration to their needs or commitments.

Access, Capacity, and Environment for Users

Increasing numbers of Mongolians are turning to technology to meet their information requirements. However, there is a lack of Mongolian language content available on the Internet, and that limits the amount of information most of the users are able to access. User and operator capacity remains

underdeveloped, and there is a lack of public access Internet points at the soum level.

The current public library system is unable to meet the information requirements of the majority of its locations, especially in areas outside of the two largest cities in the country – Ulaanbaatar and Darkhan. Librarians and other library staff often lack the technical skills required to maintain the equipment, or to properly assist persons who need to use technology-based services. The need for increased training both for the users and operators emerged as a dominant factor in inhibiting the use of ICTs in libraries.

The distance that many remote rural residents have to travel to access the libraries means that users are unable to use the services as often as they might want. Telecenters are located only in aimag centers and larger cities, which puts them beyond the reach of most non-urban residents. Cybercafés and Internet centers are found in aimag centers, but are found in only a handful at the soum level. The distance to these venues may negatively impact the rural users' abilities to integrate the available services into their daily routines.

There is a lack of relevant or local digital content available in Mongolian, and many of the existing print materials offered by the public libraries are out of date. Many library users are turning to the Internet to meet their information needs, but are hampered in doing so by the lack of public access Internet points available to them, and the lack of Mongolian knowledge sites.

Too few free Internet access venues exist for public use. The telecenters that offer free services, and facilitate ease of access for the local population in economic terms, are located in Mongolia's two largest cities, Ulaanbaatar and Darkhan, and in aimag centers. People who live in the soums are not be able to access the centers or their services easily, but can travel to them.

There are few programs at public access information points that can economically serve disadvantaged users. Interviews with the Ministry of Education, Culture, and Science officials who

oversee the public library system confirmed that there are no national programs at public libraries to reduce costs to economically challenged segments of the population. Internet centers and cybercafés are commercial entities that operate for profit and make no allowance for impaired or disadvantaged users who cannot pay the fees. Although telecenters and KBICs charge lower Internet access fees than Internet centers and cybercafés, the fees charged are still a barrier for some users.

Provisions for users with special needs are not common in public access venues in Mongolia. Infrastructure, such as wheelchair ramps, elevators, and wider aisles is lacking. A telecenter in Ulaanbaatar houses a computer with a Braille keyboard and specific software for visually disabled users, and, as with the other computers, there is no fee charged. This set up provides an opportunity for visually impaired citizens to obtain information on development issues, access online information from the Web, and actively participate in online social activities, provided they are in Ulaanbaatar. There are no such facilities beyond the city.

Revenue Streams for Publicly Funded Libraries

Funding for libraries in Mongolia is allocated from a centralized budget at the Ministry of Education, Culture, and Science. There is a budget planning and request process that each library must undertake to secure funds for the following year, and, theoretically, allows libraries to request funds against actual needs. Library operators and officials from the Ministry of Education, Culture, and Science have stated that the institutions remain underfunded, and that libraries at the soum level tend to receive identical yearly budgets of just over US\$2,000 per venue, regardless of the requests submitted.

The Law of Government Organization Administration and Financing governs the library fiscal system. The main purpose of the law is to manage

and regulate human relationships arising from budget development, approval, expenditure, and reporting. All state and local government-funded organizations, as well as joint ventures (in which the government shares exceed 51%) are subject to the law.

Membership fees are charged at each of the public libraries. These fees vary according to the geographic location of the library and, in the case of Ulaanbaatar, the age of the user. Additional support services, such as photocopying, scanning, and Internet access, as well as a nightly loan charge, are fee-based and the fees are collected from users. The money collected is fed back into the centralized library system.

SUCCESS FACTORS AND RECOMMENDATIONS

Lessons Learned Regarding Public Access to Information and Communication Venues

Given the critically poor condition of the libraries and their state of decay, the question arises as to whether these institutions are too tired to revive, and whether the populations would be best served by placing local digital hubs in these venues. Additionally, how, in post-Soviet societies where information represents power, do you change the culture around information for human development to include learning, wanting to know, knowing you have a right to know, and knowing where to ask?

Access to digital information via the Internet or mobile telephony in the rural areas is essential, but there are few public information access points in the rural areas, especially at the soum level.

Sustainability options for public access venues need to be examined, as does the further development of the mobile phone as a key information access tool for rural and nomadic populations. Supporting the development of increased ICT

access needs to be the development of the capacity of the general population, and the training of trainers who can transfer skills and facilitate knowledge localization.

There is much lower computer literacy in rural areas and less exposure to technology, which in turn, leads to a smaller demand market. Free access points would encourage the use of the Internet but would need to be supported by training for users and staff.

There is a lack of Mongolian-language content-building sites and many users are unaware of what Mongolian-language websites exist. Therefore, many people are unable to access the information that may be available. The provision of a Mongolian-language website directory for distribution to users and venues would greatly assist in guiding users towards a broader range of websites.

The KBICs are proving to be a sustainable, replicable model for providing public access Internet venues in rural and remote areas. Users of these venues report that being able to access the Internet at their local center has been of great benefit to them, and allows them seek, send, and receive information in ways they were not able to do previously. Increased community participation and a more concentrated community development approach will ease some of the problems KBICs and their users have encountered.

Mobile Internet services provided by mobile phone providers, such as G-Mobile, allow residents in the coverage areas to access the Internet in some of the most remote and isolated parts of the country. Many of the people in these remote areas do not have the awareness, skills, or hardware available to make use of this service. Provided they have the ability, this system will increase access to information and provide a cost-effective communication tool.

The public library system is unable to fully support the needs of users. Outdated information, a shortage of relevant materials, crumbling infrastructure, and a lack of digital technology combine

to create an environment in which people cannot fulfill their information needs. For users with the technical capacity and knowledge, and who have an available access point, the Internet may fill this void. For the majority of rural residents, as well as a number of people in Ulaanbaatar who are not computer literate and may not have access to the Internet, information remains unreachable.

SUCCESS FACTORS

The people in Mongolia are quick to adopt new technological advancements. For example, there are more than one million mobile phone subscribers in Mongolia. Given that the population totals just over 2.6 million people, almost 40% of the population uses mobile telephones. Mobile telephones are outstanding digital information access tools for mobile communities to access information, provided they have coverage and the costs are affordable.

Many people who use the Internet at public access venues do so for communication purposes. Communication has emerged consistently as a primary use of the Internet by users in urban and non-urban locations.

There is a lack of free public Internet access in Mongolia. An increase in free or low-fee public access Internet points supported by capacity development of users and operators would facilitate access to information in the soum and aimag centers.

Computer literacy and Internet skills for users and operators remains underdeveloped. Along with developing Internet access points, the skills of users need to be supported and developed. Data processing is a skill that requires cognitive thought, and users need to be taught how to read, interpret, and use the information they may access on the web. These are new skills in a post-Soviet context.

RECOMMENDATIONS

The following key recommendations have emerged from this research:

- Undertake a focused risk and opportunity analysis to consider whether or not libraries could or should be rejuvenated given their current state of decay, lack of capacity, and depressed condition.
- Create a culture of open learning, access to information, and right-to-know among a traditionally information-deprived society through activities targeted to raise awareness.
- Train and deploy digital information facilitators to create and meet local information needs, including minority languages, and develop appropriate computer literacy courses and train the trainers.
- Promote the range of information vectors, including radio, television, and mobile telephony, that can be developed at the community level.
- Support Khan Bank Information Centers as a low key, realistic, and potentially sustainable model that reaches the underserved populations in rural areas.
- Make affordable laptop computers available to remote rural families, along with portable Internet connection devices, such as those offered by G-Mobile. This development would allow nomadic families to connect to the Internet to seek information and to communicate. Support this with adequate training for the rural population

CONCLUSION

Much needs to be done to facilitate greater public access to information in Mongolia. The government has indicated its support for such a

development by establishing the ICTA and the e-government program, among others, but there has been little corresponding development and implementation at the grassroots level to support increased access to information for rural people.

Most of the respondents who were interviewed were forthcoming with information and were receptive to the concept of the research project. Commercial Internet center and cybercafé owners and operators, including personnel from the Mongol Shuudan (post office) and the Mongolian Telecommunication Company and their employees, were somewhat reluctant to speak about their venues, and all but a handful refused to share financial information. When collecting data from users and operators, the researchers encountered resistance and often got little information. This reticence is not uncommon in the post-Soviet context, especially among older segments of the population, where mistrust and fear of questions is an extended legacy. As a result, the researchers elected to interview a greater number of younger respondents.

The research provides insight into the public access to information venues and the overall ICT landscape in Mongolia. It has helped to highlight the gap in the public access to information between the urban and non-urban areas, a gap that is especially pronounced at the *soum* level. The process has also documented the existing public and private information access infrastructure in the country, creating a reference map that explores specific venues in considerable detail.

Emerging from the research is a more concise picture of the public access to information in the non-urban areas, particularly at the *soum* level. Included in this research is the exploration of the KBICs and the successes and challenges

that this apparently sustainable model continues to experience. Additionally, the team noted the lack of available information outlining the plans to establish ICT and public access information venues at the *soum* level.

It is anticipated that the research will assist in the creation of sustainable, appropriate, and localized projects to provide public access information venues to disadvantaged segments of the community, including non-urban residents. Included in this creation would be support for the continued roll out of KBICs at the *soum* level as information hubs with increased materials available, and the development and training of information facilitators.

It is essential to map the library landscape by undertaking a focused risk and opportunities analysis. This process will allow researchers to consider whether the libraries can, in fact, be rejuvenated, and what resources and costs would be involved in this process. A comparative study of public access to information venues and the public library system across post-Soviet countries would provide a regional overview of the information landscape in countries that have undergone transition and continue to navigate change. All carry Soviet legacies.

ICT and public access to information venues can play a pivotal role in information delivery and access in a country as large and sparsely populated as Mongolia by reaching populations regardless of their location. High literacy rates, adaptability, and the desire for technology supported by adequate user and operator training and infrastructure development, will help to ensure that the public can reach information through digital means and through the Internet.

Chapter 27

Public Access ICT in Moldova

OPINIA and Independent Sociological and Information Service
Republic of Moldova

EXECUTIVE SUMMARY

This chapter investigates public access to information venues in the Republic of Moldova. The chapter was written as a component of the 25-country Public Access to Information and Communication Venues research project sponsored by the University of Washington, USA. The project focuses specifically on the information needs to underserved communities, the role of ICT, and public access to information and communication venues in Moldova. It aims to provide a detailed analysis of these venues based on data generated through surveys conducted among the targeted users and operators, in-depth interviews, and focus groups discussions with key informants, site visits, and analysis of secondary data, including relevant country and sector studies.

It presents new empirical knowledge about the key public access venues, their strengths, weaknesses, and opportunities, information needs of the population, with a particular focus on underserved communities. This is an important issue

to study because Moldova's social and economic regeneration and the establishment of sustainable human development processes depends on the public access to information and communication technologies, and their ability dynamically to adapt to the nation's rapidly increasing needs and demands.

Since 1991, Moldova has experienced a dramatic decline in economic and social well-being and is faced with becoming the poorest country in Europe. More than a third of the population is thought to be working abroad as migrant laborers. The research contained in this paper describes ways in which key public access venues are influenced by the transformations Moldova has experienced in the last decade within the existing economic, policy, and regulatory environment.

The results of the research conducted in Moldova are valuable in enabling government and other agencies to develop policies to strengthen public access to information and communication technologies, especially for underserved communities.

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Methodology

This study was conducted in two phases. In the first phase, the study team collected general descriptive data from the available sources, including the latest statistical data provided by the National Bureau of Statistics, the Ministry of Culture, the Ministry of Information Development, as well as available national and sector studies and socio-logical reports.

Additionally, the team conducted 12 in-depth interviews with key informants using an interview guide. Key informants for this project were broadly defined to include representatives of the National Library Council, the civil society, public officials from the Ministry of Information Development, the Ministry of Culture and Tourism, and others.

The second phase was conducted among the targeted users and operators of the main local public access venues, and included interviews and focus-group discussions among key informants and stakeholders, as well as site visits. The fieldwork was conducted in June 2008.

For purposes of the study, the key venues selected were places where shared, public, and unrestricted access to information was available, both with and without information and communication technologies (ICTs). The venues selected were public libraries, Internet cafés, telecommunication centers, and NGOs. To best generate the desired information, the project incorporated both quantitative and qualitative methods of data collection and analysis.

The study areas for the project were selected while considering a range of five important aspects: 1) the present urban and rural areas, 2) the nation's present administrative and regional representation, 3) the socio-economic conditions of the communities, 4) the ethnic composition of the population, and 5) the ability to demonstrate a fairly diverse set of views and attitudes that can be described in relative depth among key stakeholders via qualitative methods.

For the quantitative analysis, the team interviewed 1092 users and 37 operators. For the qualitative analysis, the team interviewed 44 persons.

Findings

The following principal findings are the result of the research:

- During the period of transition, the public library system suffered from the overall economic regression, which has had a significant negative impact on public access to information.
- Because of poor local budgets, severe socio-economic problems, especially in rural areas, public libraries have not received adequate funding. Thus, most rural public libraries for adults and children were merged, while others were closed entirely. Furthermore, due to the lack of funds, the offices of public libraries were not repaired for many years; the furniture is old and damaged and needs to be replaced. Public libraries, especially in rural areas, are functioning without heating during the winter, and there are localities where public libraries have no electricity. Salaries of librarians are low even by Moldavian standards.
- Technologies, services, and information offered in the public libraries are inappropriate for the user's needs, especially for underserved communities. Accordingly, there is a huge gap between user needs and actual services. A large quantity of the available funds for books cannot be used because of ideological or linguistic considerations.
- There is an uneven development of libraries among the libraries in Moldova. The capital city, Chisinau, retains most of the funding, technical equipment, and expertise public access to information.

- Progress in development of public libraries is notable only in those libraries that have benefited from projects, grants, programs provided by various international organizations, foundations, etc., such as the SOROS Foundation, USAID, and UNICEF, though these libraries represent only a small segment of the total library system in Moldova.
- Along with the economic recovery, the national allocations for public libraries have increased but only slightly, and it is clearly insufficient to support the development of the public library system. The Government has taken significant steps to ameliorate the situation in the cultural sector. These include the National Strategy on the Information Society E-Moldova in 2005, a chapter on “e-culture” as one of the priorities, and new forms of promoting culture through electronic media in different sectors of the national culture, including libraries.
- The non-governmental sector is an important provider of services aimed to improve the conditions in disadvantaged communities. The associative sector in Moldova has developed considerably in the last decade, although the development has conducted in an uneven way. There is a difference between the development of the associative sector in Chisinau, where NGOs have a larger access to information, work with more donors, and are more experienced. The rural communities and small towns situated far from the capital city, the associative sector is developing more slowly. Most of the non-governmental organizations involved in activities that have significant social impact were created and are being supported largely by foreign donors.
- In Moldova, NGOs are of great importance for the local population, especially in disadvantaged communities where they provide valuable services. These services typically include information and training in information technologies, gender equality, health, human rights, youth, volunteering, agriculture, prevention of human trafficking, institutional development of NGOs, social inclusion of disabled people, etc.
- The main problem for NGOs is financial sustainability. So far, neither the government nor the private sector provides significant ongoing financial assistance to the NGOs. The majority of these organizations that have ceased their activity have had to do so because of a lack of funding. There are no government procurement opportunities for non-profit service providers.
- Over the last decade, telecommunications and information providers have been one of the most dynamic and viable sectors of Moldova’s economy. Investments and the application of advanced technologies produced a real revolution in the field. Fixed telephony, mobile telephony, and data transfer services such as the Internet have developed rapidly.
- National and international evaluations show that the digital gap is highly pronounced in Republic of Moldova is a country where. According to E-readiness Report (Ministry of Informational Development • 2005, 2006) digital gap in Moldova persists between rural and urban localities, between different regions of the country, between different social groups, between public administration at different levels, between rural and urban educational institutions, between the general secondary schools, professional secondary schools, specialized high schools and universities.
- In Moldova Internet cafes and telecenters are concentrated mainly in urban areas, especially in the capital city, where the infrastructure allows easier connection and broadband connection. Also, the tech-

nologies available in Internet cafes and telecenters vary greatly from urban to rural areas. Urban users may benefit from a wide spectrum of services, and have the possibility simply to use a computer. The cafes and telecenters may offer such services as Internet navigation using broadband connections of various types, scanning, printing, use of live video chats, burning CDs, DVDs, computer games. Some may also provide photocopying services. In rural areas, there are often no broadband connections available, and the cafes offer only dial-up Internet, computer games, and printing and scanning services.

- Since the implementation of the National Strategy on Building Information Society, the local e-content has been developed via E-Moldova. In the strategy, seven important domains are stipulated: E-Governance, E-Education, E-Economy, E-Science, E-Culture, E-Health, and the Information Society Infrastructure. Despite of some positive results, yet it is in the incipient stage. Additionally, the low Internet penetration rate in Moldova, especially in rural areas, has meant that these attempts are not targeting the underserved communities.

Success Factors and Recommendations for Future Research

A particularly valuable aspect of the research is that it provided the opportunity to provide a detailed analysis of key public access venues in Moldova. The study identified the strengths, weaknesses, and opportunities in these venues as well as the information needs of the population, with a particular focus on underserved communities. The findings also enable the government and other agencies to develop policies to strengthen public access to information and communication technologies, especially for underserved communities.

To provide even more information regarding project issues, it would be appropriate to conduct a national representative survey.

COUNTRY OVERVIEW

The present independent Republic of Moldova was established in 1991 following the collapse of the former USSR. The capital city is Chisinau. After gaining its independence, Moldova began the transition to a market economy. During the transition, the country experienced radical changes in its political, social, and economic positions. Since the initiation of reforms, the country has faced the deepest and most prolonged recession among transition countries. The result has been an increase in poverty that has made it the poorest country in Europe today.

Geography

The Republic of Moldova is a small, landlocked country located in South-East Europe. To the North, East, and South, it borders with Ukraine (939 km), while on the West, it borders with Romania (450 km). It encompasses approximately 33.8 thousand sq km and spans 350 kilometres from North to South, and 150 kilometres from West to East. Moldavian topography is represented by hills and plains.

Moldova has relatively few natural resources. Nearly all of its energy resources are imported. However, the country has important reserves of mineral resources that are used for construction materials. The main natural asset of Moldova is its rich black soil called “*cernoziom*,” which is particularly valuable in the development of agriculture.

Political/Geographic Divisions

Moldova is a parliamentary republic. The legislative body is a one-chamber Parliament with

101 seats. The members are elected based on a proportional electoral system with one national constituency. The head of state is the president, who is elected by the parliament for a four-year term. The country's current ruling party is the Communist Party of Moldova, which has held power since 2001.

At the regional level, the bodies of representative power are the district and commune-level local councils called *Primariyas*. The executive branch of power is the prime minister, who is head of the government.

Administratively, the country consists of 32 districts, three municipalities, and two semi-autonomous regions, one of which is the break-away region of Transdnestria. From a regional aspect, Moldova is divided into six regions: North, Center, South, the municipality of Chisinau, the Territorial Administrative Unit of Gagauzia, and Transdnestria.

Moldova is composed of 1,530 localities, including three municipalities (Chisinau, Balti, and Comrat), 54 towns, 1,476 rural settlements, including 847 residential villages where village councils are located (communities), and 629 settlements within communities and cities (excluding Transdnestria). When compared to other countries that have evolved from the former USSR, rural localities in Moldova are rather large based on the size of the population. Rural localities are registered as the largest villages in all of Europe. These villages have populations of 15 to 20 thousand people.

More than 10% of the national territory is occupied by human settlements. The density of the settlement network in Moldova with five settlements per 100 sq km is greater than the density in neighboring nations.

Demography

Moldova is one of the most densely populated countries in Europe, with a population of 3,581,100. Of that number, 41.3% (1,478,000)

is urban, and 58.7% (2,103,100) is rural. Approximately half of the urban population lives in Chisinau. Moldova continues to be the country with the lowest level of urbanization in Europe. As for the gender balance, 48% of the population is male, and 52% is female. Chisinau, in the central part of the country, is the largest city in Moldova with a population of 780,000. The second largest city is Balti and is located in the north-central Moldova. Balti has a population of 148,000.

The most heavily populated rural regions and their percentages of the total population are: Cantemir – 94%, Anenii Noi, Criuleni, and Telenesti – 90%, Stefan Voda – 89%, Hancesti – 87%, Ialoveni and Soldanesti – 85%, Falesti and Glodeni – 83%, and Sangerei and Briceni – 82%. The most heavily populated urban regions and their percentages of the total population are: Basarabesca – 39%, UTA Gagauzia – 37%, Ocnita – 34%, and Taraclia and Ungheni – 32%.

During the last decade, Moldova has experienced a decrease in population for several reasons. The main is the result of a dramatic drop in the birth rate and a correspondingly sharp increase in the mortality rate. Another major factor is a negative international net migration, especially of young people. The migration of people seeking employment is playing a key role in changing the demographics and is a major long-term and ongoing concern for the country. The general census of 2004 revealed that between 1989 and 2004, 367,000 Moldavians, or 10% of the population, have left the country to seek employment, while unofficial sources state that the number of emigrants was nearer 600,000 people. This larger figure represents nearly a third of the total number of the economically active population. Migration is both a consequence of poverty and a key strategy for coping with it.

According to surveys, about 60% of the migrants go to Russia, which has been a traditional destination for migrant agricultural and construction workers even during the Soviet era, and about 30% go to one of the EU states, most commonly

Italy. More than half of the migrants are under 30 years old and 88% are under 45.

Demographic and migration movement has caused a significant impact on the age structure of the population. Thus, the increase in demographic ageing is especially evident in Moldova because of the percentage of people under the age of 15 and, correspondingly, the percentage of the population aged 60 years and over. The average age of the country's population increased from 33.4 years in 2000 to 35.6 years in 2007, putting Moldova in the group of countries with an "adult" population.

The discrepancy in the age structure of the population is more obvious when considered by regions. The condition is driven by territorial variations in the demographic phenomena and by the migration flow of the population. The proportion of elderly is 1.4 times greater in rural areas than in urban settlements. Almost 12% of the rural population is over 65 years of age, and elderly women account for 14% of the total number of women living in rural settlements. In urban settlements, the average age of women is 2.9 years higher than that of men, with the age gap reaching 3.3 years in rural areas.

The reduction in the size of the working population and the rise in the average age of employees in the national economy have produced complex consequences for the country's social and economic development. Furthermore, this combination has had a direct impact on the overall supply of laborers, investments, income distribution, public expenditure for social insurance, etc.

According to the 2004 census, 75.8% of Moldova's population is composed of ethnic Moldavians/Romanians. Ukrainians make up 8.4% and 5.9% are Russians, constituting the largest minorities. Other minority groups include Gagauz (ethnic Turks) at 4.4% and Bulgarians at 1.9%.

Moldavian, the dominant language, is virtually the same as Romanian and was officially declared the primary language in its Latin script in 1994. Other spoken languages include Russian

and Gagauz. Eastern Orthodox is the predominant religion in Moldova.

Among the more important issues that exist in present-day Moldova are economic and social crises that have been accompanied by increasing and sharp disparities between the urban and rural areas and the accompanying uneven regional development. Against the background of increasing poverty in the country, the rural population is in the most disadvantageous situation.¹ The rural population represents 61.4%² of the total population, and approximately 60% of all the poor who live in village settlements.³

METHODOLOGY

Team Qualifications

The research was performed in Moldova by the Independent Sociological and Information Service "OPINIA" (ISIS "OPINIA"). OPINIA has been active in Moldova since 1992 and has an expertise in qualitative and quantitative methods of research, using representative surveys of populations and target groups in Moldova, in-depth interviewing, focus-group discussions, and statistical and sociological analyses. OPINIA also has expertise in compiling demographic, social and economic profiles of different segments of the population in Moldova using existing data sources, and has compiled a database of social indicators related to development of Moldova since its independence.

Literature Review

Several sources of secondary data were used for the purposes of the Project. These included:

- The latest national statistical data provided by the National Bureau of Statistics, the Ministry of Culture, the Ministry of Information Development, and others.

- Summaries of in-depth interviews conducted with key informants at the first stage of the project.
- Available country and sector studies and sociological reports that provided more general historical and socio-cultural context and helped to determine social development issues, such as public access to information and communication landscapes and urban/rural discrepancies.
- Social capital and social diversity, etc.

For the purposes of the project, the following studies were of particular importance: the National Strategy on Building Information Society “E-Moldova” (2005), reports on Moldova’s E-Readiness for Building Information Society (2005, 2006), the National Development Strategy for 2008-2011, the Economic Growth and Poverty Reduction Strategy Paper, reports of the National Library Council, the Annual Reports of J.S.C. “Moldtelecom” (National Telecommunication Operator in the Republic of Moldova), and annual reports on the activities of the National Regulatory Agency for Telecommunications and Informatics and Development of Telecommunications and Informatics Market.

Venue Selection

Key venues selected met the criteria of being spaces where shared, public, and open and unrestricted access to information was available, both with and without ICTs. Public libraries, Internet cafés, telecommunication centers, and NGOs were included. These venues are easy to identify, and have a basic level of infrastructure and capacity. Some of these venues are organised in a network or association that spans the republic and are coordinated by a supervising body.

Other public access venues selected included employment offices, certain specialized libraries, and Public Access Internet Points (PAIP) opened with financial aid from different international

organizations, such as the SOROS Foundation, USAID, etc. These types of venues were not included in the study for a variety of different reasons. First, they are visited mostly by a specific category of users (i.e., unemployed workers, students, etc.). And second, their activities may end abruptly if their financing ends.

Specialized libraries are not widely known by the general population, although these libraries are open to the public and are used by specific categories of users (public officers, academic staff, students, etc.). These libraries offer access to specialized types of information (technical, agricultural, medical, etc.). All are located in urban areas.

Inequity Variables

In Moldova, the discrepancies between urban and rural areas are clearly evident. During the transition to national independence, the rural population was affected more severely by poverty than the urban population. People in rural areas have limited access to information and ICT facilities. The lack of adequate financing caused a significant number of public libraries in rural localities to close. Most of places that offer Internet services to the public are concentrated in cities, especially in Chisinau. The majority of the information and documentation centers also are located in urban areas. The coverage of fixed and mobile telephony is much lower in rural areas than in urban areas. Consequently, it can be seen that location is a particularly important variable affecting public access to information.

Additionally, socio-economic status also is an important variable affecting public access to information and ICTs. People with limited finances, therefore, have limited access to information and communication services since they cannot afford computers, Internet services, and ICT facilities.

A person’s education level is less of a variable affecting equitable public access to information and ICT services because all public access venues

offer their services without such a restriction. Nevertheless, the research indicates that people with a low education levels are among those who are affected most by poverty. The majority of such people live in rural areas. Similarly, persons with a higher education level are believed to have access to the Internet at their work place, while those with a lower education levels are believed to have less access to computers.

For the purposes of this study, older people are considered relatively disadvantaged when compared to younger people in regard to access to ICTs. First of all, a high percentage of the elderly live in poverty. Secondly, most public libraries tend to direct their funds towards renewing their content mainly with books for youth (education materials, etc.).

People with disabilities also tend to be disadvantaged with regard to access to ICTs. In Moldova, there is no special policy regarding access to information for disabled persons. Only a few public libraries (usually with the support of international donors) offer special services for this vulnerable social group.

Data Collection

For this study, the research team incorporated both quantitative and qualitative methods to collect and analyze data. The fieldwork was performed in June 2008. The selection of the areas to be studied for the project was took the following five aspects into consideration: 1) urban and rural residential areas, 2) the nation's administrative and regional representation, 3) the socio-economic conditions in the communities, 4) the ethnic composition of the population, and 5) demonstrate a diverse set of views and attitudes that can be described in relative depth among key stakeholders via qualitative methods.

For the study, Moldova was divided among five areas: North (Edinet and Balti counties), Center (Rezina and Calarasi counties), South (Taraclia and Cahul counties), and the municipality of Chi-

sinau. Urban and rural settlements were selected in each region. For political considerations, the Transdnistrian region was excluded from the study areas.

The quantitative methods used included surveys among users and operators of public libraries, cybercafés, telecenters, and NGOs. Two separate questionnaires were used for users and operators and consisted of closed-ended and open-ended questions. A total of 1,092 users and 37 operators were surveyed for the quantitative segment.

The qualitative methods used included analytical and participatory tools for data collection and analysis. The data collection methods included focus group discussions (FGDs) and semi-structured individual/expert interviews.

Given the selection criteria, 44 persons were interviewed for qualitative part of the study. That part comprised a total of four focus-group discussions (FGDs) in four regions that made up a total of 34 people (8 to 9 people per FGD) and 10 individual interviews involving representatives of all of the key stakeholder groups. FGDs included discussions with librarians representative of public rural and urban libraries. Individual interviews were conducted among key informants of the Public Library System, the telecommunication sector, and civil society.

Overall Country Assessment

Public Access to Information

The key public access venues in Moldova are public libraries, cybercafés, telecenters, and NGOs. In addition, other venues include specialised libraries, Public Internet Community Points, certain libraries in educational institutions, etc. All of these venues are paths to public information to varying degrees. Each of these types of venues has its history of development and infrastructure, and each faces its own special difficulties as are the result of economic and other obstacles.

The public library system is one of the most important venues and is part of a network that covers nearly the entire nation. In some rural localities, public libraries are the only venues offering access to information. Yet, the public library system is deeply affected by the social and economic crisis that Moldova has been facing for the past decade. Public investments in the public library system remain small, too small to accommodate serious development and innovation. The worst situations are experienced by rural public libraries. The contributions to the development of the public library system from international organizations, donors, and others for book-fund renewals, equipment with ICT, etc., are noteworthy.

The non-governmental sector in Moldova has been developing considerably during the past decade. Most of the non-governmental organizations involved in activities with significant social impact were created and are being supported mostly by foreign donors. The biggest problem for NGOs is financial sustainability. So far, neither the government nor the private sector provides significant financial assistance to NGOs. The majority of these organizations that ceased their activity have done so mainly because of a lack of funding. There are no government procurement opportunities for non-profit providers of services, especially for underserved communities.

The National Strategy on Building Information Society “E-Moldova” (2005) states that over the past decade the telecommunications and information sector has become one of the most dynamic and viable sectors of Moldova’s economy. Investments and the application of advanced technologies have revolutionized the field. Fixed telephony, mobile telephony, and data-transfer services (Internet) have developed rapidly in less than ten years. The range of services has expanded considerably and includes IP-telephony, pre-paid card services, voice messaging, video conferencing, and broadband access through the local ADSL loop. The structure of the telecommunication sector has also evolved rapidly, and

the number of networks and types of networks requiring interconnection, such as networks of fixed telephony, networks of mobile telephony, Internet networks, television cable networks, and others has grown substantially.

However, most of the development of the ICT sector remains in urban areas, especially the in capital city where the infrastructure allows easier connection and broadband connection. Rural areas still have fewer Internet cafés and other venues that offer access to the Internet. In many localities, the only way to gain access to the Internet is in the office of the local administration, and, in some cases, there is no access at all.

ACCESS, CAPACITY, ENVIRONMENT, AND THE INEQUITY ENVIRONMENT IN THE COUNTRY

Access

The overall access system in Moldova is characterised by sharp discrepancies between urban and rural areas. The lack of available public funds in rural area has caused a considerable number of rural public libraries to close, while the number of urban public libraries remained stable. It is noteworthy that in the past few years, along with some national economic recovery, there has been a tendency to reopen rural public libraries. Without sufficient financial support, book collections and services were not developed to meet the demand. The funds allocated by local budgets are not enough to support book-fund renewal.

As for digital ICT services, the urban/rural disparities go even deeper. Most of the public libraries equipped with ICTs are located in urban areas (Chisinau and most of county centers). Only a few rural public libraries offer ICT services.

Poor library collections inhibit the quality of the work and lead to dissatisfaction among users, staff, and quality assessors. The staff and users of a small number of public libraries that have

benefited from grants, programs, and projects provided by international organisations (mainly financed by the SOROS Foundation) are in an advantageous and advanced situation.

The same situation exists regarding access to ICT facilities. Most cybercafés are located in urban areas. Private economic agents are not motivated to extend their services to rural areas because most of the rural population cannot afford to pay for the services. Adding to the issue is the fact that much of the rural population does not have the knowledge to use computers and other information and communication technologies.

Similarly, the associative sector is developing unevenly. There is a significant difference between the development of the associative sector in Chisinau, where NGOs have a greater access to information and work with more donors and are more experienced, and the development of the associative sector in the rural communities or small towns situated far from Chisinau.

Capacity

The capacity of the public library system has been deteriorating since the transition to a market economy. Because of low salaries and the lack of librarians, many employees of the public library system do not have adequate professional training, are not acquainted with the new technologies, or do not have the necessary skills for fundraising or writing project proposals, etc. In past years, there has been a noticeable ageing among the library staff, especially in rural areas. The number of young specialists employed at public libraries is insignificant. The main part of available content in public libraries, especially in rural areas, is not relevant for local stakeholders. The situation is worse with regard to equipment with ICT facilities.

The NGO sector in Moldova is financed mostly by international donors. Furthermore, NGOs can afford to employ well-trained staff, buy equipment, etc. The services provided by most NGOs are quite important for the local population,

especially for disadvantaged communities in regards to information and training in information technologies, gender equality, prevention of HIV/AIDS, writing for projects, human rights, youth, volunteer work, agriculture, prevention of human trafficking, institutional development of NGOs, and social inclusion of disabled people.

As most cybercafés are private and operate for profit, they manage themselves according to supply and demand, number of employees, appropriate technologies and services, etc. There is qualified staff available in Moldova for the ICT sector.

Environment

The economic and legal environments in Moldova are the two main factors influencing development of public access venues. Thus, development of the public library system in Moldova depends on Government financial sources (local and national budgets). The social and economic crisis in Moldova during the transition has been a major cause in the drastic reductions in the budgets for public libraries. The level of political will and public support for the public library system in Moldova is unsatisfactory and inadequate to meet the need. The justification offered by public officials is the poor socio-economic situation in the country, and, consequently, no funds are available for the cultural sector, including public libraries. It seems the authorities do not perceive the importance and role of public libraries in the improvement of the socio-economic situation, or in the contributions of libraries in offering concrete solutions for disadvantaged communities.

The legal and regulatory framework of the public library system is based on the Law on Libraries (1994) and the Law on Local Public Administration (1998). Many people argue that the Law on Libraries does not support present demands, such as the need for global access to information. In 1994, no electronic catalogues or electronic databases were available and were not

thought to be imperative to access information. In fact, the Law on Libraries contained no terms, such as Information Society, Knowledge Society, Communication Society, E-culture, or E-library, which would have suggested supporting these ways of accessing information through ICTs.

The associative sector in Moldova increased in the past decade. However, the main problem of NGOs is financial sustainability. The financial viability of NGOs is limited largely by Moldova's weak economy. NGOs generally lack funding for their activities and rely primarily on international donors for financial support. The legal framework for NGOs is generally progressive and consistent with the best practices in Europe and the international community. Nevertheless, many provisions of the law contain unclear phrasing that the government has failed to implement effectively. Vague terminology and inconsistency in the laws and regulations permit government officials to apply the legal framework, including provisions governing registration, taxation, the provision of goods and services for fees, and others, in an arbitrary manner. During the past couple of years, considerable effort has been made to develop adequate national legislation regarding ICT.

Inequity Environment in the Country

The main underserved groups in Moldova are:

1. **A financially disadvantaged population.** These people live mostly in rural areas and small towns with an undeveloped infrastructure. Most live in the Southern region. People with limited finances have limited access to information and communication services. They cannot afford to buy computers, pay for Internet services, or pay for other ICT facilities.
2. **People with a lower educational level.** They are among those who are hit hardest by poverty, and most of these people live in rural areas. Additionally, those with a higher

educational level more often have access to the Internet at their workplace, while those with a lower educational level have less access to computers and the Internet at their workplace.

3. **Older people.** They are commonly in a disadvantaged situation. Most of public libraries direct their book-renewal funds towards youth. The information requirements of the elderly are seldom taken into consideration.
4. **The rural population.** In Moldova, the discrepancy between urban and rural areas is highly evident. During the transition, the rural population was the most affected by poverty. The rural population has limited access to information and ICT facilities. Due to financial problems, a significant number of public libraries in rural localities closed. Most of the public places that offer Internet services are concentrated in cities, especially in Chisinau. The situation is the same with regard to the information and documentation centers, most of which also are located in cities. The penetration rate of fixed and mobile telephony is much lower in rural areas.
5. **Disabled persons.** Moldova has no special policy regarding access to information for disabled persons, and only a few public libraries offer special services for this vulnerable social group.

Information Needs of the Underserved Communities

According to qualitative data gathered during this study, Moldavian public libraries exhibit a huge gap between the information needs of the local populations and the information provided, especially with regards to underserved populations. This situation is typical throughout the country. The valuable services and information offered by some public libraries achieve this success with

financial aid provided by various international organizations.

Most public library staff members who participated in the interviews said that the actual situation in the public libraries is such that all information is welcomed and deemed useful for their users. These are the main topics mentioned:

1. Literature for school programs, because the majority of public library users are pupils, especially in rural areas. Children from poor families cannot afford to buy books, and that is why they go to public libraries where access to information is free.
2. Information about agriculture that describes new technologies, markets, and consultations, as well as information about prices for products, possibilities for buying seeds, etc.
3. Information on medicine and psychology.
4. National legislation, policies, and regulatory framework. All of the needed information is presented in the Official Monitor of the Republic of Moldova. However, the cost to access this information is quite high. An annual subscription costs 1815 MD Lei, or the equivalent of about \$170 USD, and most public libraries, especially in rural areas, cannot afford it.
5. Information on human rights.
6. Job opportunities. Unfortunately, there is no available content, or even e-content, regarding job opportunities outside of Chisinau.
7. Access to main republican periodical editions. Because of the poor finances in many public libraries, especially in rural areas, they typically subscribe to the cheapest newspapers and magazines.

The following is a list of the services the interviewees said should be offered:

1. Access to computers and to the Internet. Many of the staff of public libraries stated

that the number of users in these venues increased considerably once the libraries began to provide such services.

2. Access to useful databases (economic agents, markets, etc.).
3. Access to e-government services. In only a few years, Moldova had some success in this field and access to those services in underserved communities would be a great achievement.
4. Photocopy services. Because only single copies of most books are available, photocopy services would meet a strong demand.

Economic, Policy, and Regulatory Environment

Economic

The local and national economic environment greatly affects the national public library system. Once the public libraries fall under the jurisdiction of local public authorities, the libraries are financed from local budgets and only in part by the Ministry of Culture. Funding to public libraries varies widely among counties, municipalities, and other agencies. Financial assistance depends on the funds available from each local budget for public libraries. Because most localities, especially those in rural areas, face severe socio-economic issues, local authorities have limited funds to allocate to the libraries. Public libraries, for many years, were not a major concern for communities. Usually, local authorities consider school libraries more important in their communities. Conversely, in the localities with prosperous economic agents contributing to local budgets, and local authorities receptive to information needs of the population, public libraries have received adequate local financing, even providing ICTs.

Most of the local public authorities cannot afford to equip public libraries with ICTs. For many years, there was no state program for implementing ICTs in public libraries. Such state programs

existed, but they served school and university libraries, because those venues were then, and still are, considered to be a priority for the government.

A similar situation exists at the national level. The social and economic crisis during the transition caused a drastic reduction in the budget for public libraries. Thus, the development of the public libraries system is directly dependent on the local and national economic environment.

Policy and Regulatory Environment

The public libraries are administered under the provisions of the Law on Libraries (November 16, 1994). They operate in compliance with the Framework Regulation for Public Libraries Organization and Operation (March 2, 1999) and the Law on Local Public Administration (November 6, 1998).

For the most part, the activities of the whole library system are based on the Law on Libraries (approved in 1994) that specifies the legal status of libraries and how they should operate. The Law on Local Public Administration specifies that public libraries are under their jurisdiction, and that local public authorities should annually allocate funds for these venues.

In past years, local experts proposed a range of modifications to this Law, but nothing has been done to date. The proposed changes were submitted to the Ministry of Culture and Tourism and refer to introducing new terms, new paid services, the provision and use of computers, and others.

With regards to the telecommunication sector, Moldova is recognised as having comprehensive legislation governing the electronic communications sector, overseen by the National Regulatory Authority (ANRTI). Interconnection regulation is considered to be complete and in line with European legislation. There are no licensing restrictions on wi-fi in Moldova. However, certain key elements appear to be missing from this framework, such as e-commerce and e-signatures legislation and, more importantly, laws regarding intellectual

property rights. This apparent gap, coupled with insufficient enforcement where regulations exist, has an obvious negative impact on the development of the private ICT sector by failing to combat piracy and the black market.

Collaboration Practices Already Existing Across Venues and Future Opportunities

There has been a favorable collaboration between Moldavian public institutions and international organizations that have representatives in the Republic. Thus, the existing e-strategy was elaborated on and given the support of the United Nations Development Program. There is also favorable collaboration with the World Bank, the SOROS Foundation, and others.

The strategic development of the public library system was considered within the context of local, national, and international cooperation. To improve staff, capacity trainers were invited to Moldova from various countries. A good working relationship was established with librarians from the United States and came from the Library of Congress, ALA, Ohio State University, and Wayne State University. U.S. librarians organized conferences, training sessions, management courses, and seminars. These capacity-building activities had a great effect in encouraging Moldavian librarians, and to promote reform. Moldavian librarians gained a valuable experience from their colleagues from other countries regarding the latest information in the field of librarianship.

Considerable advances in the Moldavian public library system have developed through collaboration of local libraries with libraries in Romania. In the past decade, Romania has offered large donations of book funds for school, university, and public libraries. It should be noted that in Moldova, book-fund donations are linked to the local population's cultural and ethnic composition. Consequently, significant donations of book funds

are made to libraries from sources such as Russian, Bulgarian, and Jewish groups and agencies.

As to collaboration between different public access venues, the collaboration between some NGOs and public libraries stems from offers of book funds and training. This collaboration is extended especially in rural areas.

Buzz Factor: Perception of What is “Cool,” What has Momentum

In past years, the public and the Government have aimed at developing the ICT sector, and certain steps have been accomplished, such as the elaboration of the National Strategy “E-Moldova” (2005). The first steps in the e-strategy implementation began with the installation of equipment with ICT capabilities at public and state institutions.

Also, for many years, the National Program “Salt” was being implemented in Moldova. Its main objective is to supply all school libraries with ICT capabilities. The results have been quite favorable.

These programs offer new opportunities for strengthening public access information venues in Moldova. For example, included in the National Strategy on the Information Society, E-Moldova (2005) is a chapter on “e-culture” that deals with new forms of promoting culture through electronic media in different sectors of the national culture, including libraries. Public libraries could be transformed in Public Access Internet Points, especially in rural areas.

SHIFTING MEDIA LANDSCAPE

Mobile telephony is developing rapidly in the Republic of Moldova, and the user base continues to grow. Mobile penetration overtook fixed-line penetration for the first time in 2005. The number of mobile subscribers increased from 787,000 in 2004 to 1,090,000 by the end of 2005 and reached

1,194,500 in mid 2006. This data represents a penetration rate of 35.2%.

Venue Assessment

Overall Venue Landscape Assessment

According to National Bureau of Statistics data, there were 1,391 public libraries in Moldova as of January 2007. Administratively, public libraries in Moldova are distributed according to county division (there are 32 units). In each county there are county libraries, city libraries, and community (village) libraries. There are municipal libraries only in some counties.

Professional management, cooperation, and coordination of the work of public libraries are under the jurisdiction of the National Library Science Board. (Previously, they operated under the Government and from 2002, were administered by the Ministry of Culture). The National Library Science Board ensures standard compliance with national regulations regarding the library science area.

The prolonged economic crisis Moldova has faced during the transition period has had a direct impact on the operation of the public library system. The crisis has had a large role in the budget cuts the libraries have experienced. Given the severe social and economic problems, the public authorities have little money available to contribute to library development.

The number of registered NGOs in Moldova has grown steadily in the past decade. Civil society in Moldova is described as being weak. Despite a fairly high number of registered NGOs, few are active and functioning. International organisations estimate that only 150 to 200 NGOs are active in Moldova⁴.

The number of Internet cafés has increased in recent years. According to data available in 2007, there were 474 Internet cafés registered.

Access, Capacity, and Environment for Venues

The overall access ecosystem in Moldova is characterised by a discrepancy between urban and rural areas. The most developed public libraries, NGOs, and other venues are located in urban areas.

Revenue Streams for Publicly Funded Venues

Public libraries fall under the jurisdiction of local public administration. The administrative organization is the main source of financing through local budgets. A local budget is formed by the contributions of local economic agents. The local public councils make the decision to fund public venues according to stipulated requirements. The council approves categories of cost, such as salaries, book funds, and renovations. However, many librarians complained that the public councils could change the allocations during the year. At the national level, the allocations for public library system are approved by parliament.

Most of the non-governmental organizations involved in activities that have significant social impact are created and supported for the most part by foreign donors.

SUCCESS FACTORS AND RECOMMENDATIONS

The following is a list of the success factors that already exist and govern public access to information and communication venues in the Republic of Moldova:

- Existing national network of public libraries covering more or less the entire expanse of the republic.
- Collaboration with international financial organizations and donor countries in the development of the public library system

and their availability to continue providing financial and technical assistance for public library system development.

- Collaboration between public libraries and civil society (NGOs, mass media, etc.).
- Comprehensive legislation in the electronic communications sector, overseen by the National Regulatory Authority (ANRTI). Approval and implementation of important documents for ICT development in the Republic of Moldova: the Strategy on Building Information Society “E-Moldova” (2005), reports on Moldova’s E-Readiness for Building Information Society (2005, 2006), and the National Development Strategy for 2008-2011.
- Development and expansion of the telecommunication sector during the past decade.
- Skilled human resources in the non-governmental and telecommunication sectors.

Weaknesses

- Inefficient legal system as it relates to libraries. System needs to be modified and updated to meet current conditions.
- Technologies, services, and information in Moldavian public libraries are not appropriate to the needs of the local population, especially for underserved communities.
- A lack of available funds. The offices of public libraries were not repaired for many years. The furniture is old and damaged. Public libraries, especially in rural areas, often function without heating during the winter. Libraries in some localities even lack electricity.
- The growing deficit in the skilled labour force, due largely to the migration of manpower. The migration of the labour force scaled up during the second decade of transition. Because of the low salaries and the lack of librarians, many employees of the

public library system do not have adequate professional training, are not acquainted with the new technologies, and do not have the necessary skills for fundraising and for writing project proposals. There has been a significant aging of the library staff, especially in rural areas.

- Limited financial capacity of central and local public administration to provide adequate financing for public libraries.
- Poor targeting of social assistance through implementing special programs for underserved communities.
- The social and economic gap between the municipalities of Chisinau and Balti and other communities. During the transition period, there was a sharp increase in the contrast between urban and rural settlements. The country's development is still polarized. The greatest development is in the Chisinau and Balti. Because of certain more vulnerable communities, there are a considerable gaps across regions, including revenues, employment, access to health care and education services, and the physical and social infrastructure.
- The level of political will and public support for public libraries system in Moldova is unsatisfactory and inadequate.
- Private economic agents providing ICT services are not motivated to extend their services to rural areas because most of that rural population cannot afford to pay for the services.

Opportunities

- Collaboration with international financial organizations and donor countries that can provide financial and technical assistance for the country's development.
- Modify the law on libraries according to current requirements.

- Expansion and enhancement of the communications and IT sectors in small towns and in rural areas.
- Extension of service areas to meet the needs of the local population.
- Develop programs for underserved communities.
- Strengthen the capabilities of the local public authorities and of the public service providers in small towns and rural areas.
- Strengthen the collaboration among local public administrations, local economic agents, and civil society.

SUCCESS FACTORS AND RECOMMENDATIONS FOR PROMOTING PUBLIC ACCESS TO ICTS

- Modify the existing legislative framework of the library system by adapting it to community needs.
- Train the staff of public access venues to improve fundraising and project proposals, and resolve other important issues related to development of the public information system.
- Provide public libraries with ICT facilities and adjust them to become Internet Public Access Points.
- Provide an updated legislative and regulatory framework to motivate local economic agents to sponsor and sustain public access venues.
- Diversify the sources of financing for the public information system by creating a common fund, which would create opportunities for developing these venues.
- Conduct an information campaign among local public administrations to emphasize the importance of public access venues for underserved communities.
- Provide an updated legislative and regulatory framework for motivating local eco-

- nomic agents to extend ICT services in rural areas and provide special programs for underserved communities.
- Create a commission at the central level that will monitor the funding allocations for public libraries.
- Design specific training programs in the use of ICTs to meet the educational needs of the staff of public access venues. Training for the information professionals should focus not only on new methods and techniques for the development and provision of information and communication services, but also on relevant management skills to ensure the best use of technologies.
- Ensure nationwide coordination of the ICT implementation process in cultural institutions.

CONCLUSION

General information about the public access landscape in Moldova is available. However, specific information about the equipment in public access venues with ICT facilities, including urban and rural locations, is missing.

It is difficult to provide concrete data about some of the NGOs in Moldova. The data are available only from studies conducted by different research centers.

Some limitations in conducting this research were due to the period in which the fieldwork was performed. During the summer, the number of users per day in public libraries and NGOs is lower than in other seasons of the year. To gather the necessary number of respondents according to the timetable, more venues were selected for investigation.

This project is relevant for Moldova because it:

- Produces new empirical knowledge that goes well beyond what is already known about the key public access venues.

- Identifies strengths, weaknesses, and opportunities in these venues.
- Highlights the information needs of the population, with a particular focus on underserved communities. The focus on underserved communities is an important issue to study because of Moldova's social and economic regeneration; the establishment of sustainable human development depends on the public access to information and communication technologies and their dynamism to adapt to present demands.

As the research progressed, the significant discrepancies between urban and rural areas regarding the access to public access venues in Moldova became obvious. Thanks to discussions with librarians from rural areas, the difficulties facing these venues were revealed.

The results of the research are valuable for enabling the government and other agencies to develop policies to strengthen public access to information and communication technologies, especially for underserved communities.

A national representative survey would be useful for providing more information on project issues.

ENDNOTES

- ¹ Ministry of Economy and Trade. National Development Strategy for 2008-2011, Chișinău 2007, p.27
- ² National Bureau of Statistics. Census data carried out in 2004.
- ³ Ministry of Economy and Trade. National Development Strategy for 2008-2011, Chișinău 2007, p.19
- ⁴ Nations in Transit, 2007. p. 483

Chapter 28

Public Access ICT in Georgia

Institute for Polling and Marketing (IPM)
Georgia

EXECUTIVE SUMMARY

Georgia was a key republic in the former Soviet Union until gaining independence in 1989. Like many of the other former component republics, Georgia then faced an uncertain future and entered a lingering state of political, social, and economic turmoil. Successive government administrations have struggled to overcome these issues and have instituted a number of reforms, but so far, the reforms have experienced only limited success. Many of the reforms directly affect public access to information and communication technologies (ICTs).

Georgia has not kept pace with the processes of developing access to information that have occurred in much of the rest of the world, and this is particularly true when compared to other European countries that have more favorable political and socio-economic positions. As an example, telecommunications and ICTs that lean heavily on landline access are unavailable in much of the remote rural regions because the infrastructure has

not been maintained following the armed conflicts that have erupted on several occasions.

Because of the unusual conditions that exist in Georgia, the country was selected to be one of the 25 countries to participate in this investigative study that was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework in Georgia. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

The research team identified public libraries, Internet cafés, and the National Library of the Parliament of Georgia as the most important providers of public access to information and selected them as the primary objects of this study. The study focuses on these venues with regard to access, capacity, and environment based on in-depth interviews with key stakeholders, secondary data analysis, focus group discussions with venue users and operators, site visits, and a quantitative survey. Special attention was given to inequities

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and information needs of underserved communities and to the regulatory environment.

Methodology

When this study was designed and initiated in 2008, the research effort conducted in Georgia was aligned in two phases. In the first phase, the research team identified the venue types that were determined to be making the most important contributions to the public's access to information. Public libraries, Internet cafés, and the National Library were selected after considering the results of interviews with persons who were identified as knowledgeable in the field, and based on 25 subsequent in-depth interviews with key stakeholders to obtain detailed information for each venue type. The information gathered through the various interviews was supplemented by information gathered in six focus-group discussions with venue employees and users, as well as from the results of 14 site visits, secondary data analyses, and a field survey of 792 users.

Findings

Before this study began, there was a commonly held presumption that a huge difference existed between the abilities of urban and rural Georgians to gain access to information and ICTs. For the most part, the presumption proved to be true. The unequal distribution of venues and information sources between urban and rural regions emerged as one of the most obvious inequity variables. It also became equally apparent that people in the larger communities have better access than those who live in smaller communities. The limited access in rural areas is often a direct result of the geography – people living in high mountainous regions and other remote sites are the most underserved groups.

In addition to the physical location of the venues, ethnicity also is an important variable

affecting public access to information, especially among ethnic minorities.

Georgia has 1,396 public libraries, and of that total, 1,218 are located in rural settlements. In terms of size and type, public libraries were divided into two groups: 1) Central public libraries serving the districts located in urban areas, and 2) smaller libraries in the villages and cities that are under the supervision of the central libraries. There are 65 defined districts in Georgia, each of which has a central library. Approximately 123 more libraries similar in size to central libraries are located in various cities across the nation.

The government of Georgia is working to improve and expand the public library system with the intent to establish the entire system as an important public source of information. As this study was being conducted, this well-intentioned program was still under development, but as the program evolved, it appeared that the net result would be a reduction in the total number of libraries in the system. The government plan suggested that several small neighboring libraries might be combined to form larger facilities.

Internet cafés can be found in many communities, but the research team was unable to locate any definitive estimates of the total number of these small public venues. By far, the vast majority of them are located in urban areas. A recent settlement infrastructure survey conducted by IPM showed that out of a proportionally selected group of 52 small cities, 35 have at least one Internet café. The survey also showed that of the 667 surveyed villages, only four appeared to have Internet cafés; however, each of the largest cities, without exception, has several.

The cost to use the services offered at Internet cafés is often too high for most potential users, especially among the lowest levels of the economic scale. Although as some respondents noted, Internet cafés are perceived to be an important source for anyone seeking the most current information and content produced in foreign countries.

Success Factors and Recommendations

The study results provided a detailed analysis of key public access venues – strengths, weaknesses, opportunities in the venues, the information needs of the population – with a particular focus on underserved communities. A subsequent comprehensive national representative survey would serve greatly to validate the findings of this research and provide more precise quantitative results on project issues. Such a survey is highly recommended.

COUNTRY OVERVIEW

Introduction

After gaining independence, Georgia faced an uncertain future and entered a lingering state of political, social, and economic turmoil. Successive government administrations have struggled to overcome these issues and have instituted a number of reforms, but so far, the reforms have had only limited success.

From the historical perspective, Georgia, has had a turbulent political past. It stood as an independent republic between 1918 and 1921, but in 1922 it was incorporated into the Soviet Union, from which it subsequently declared its independence in April 1991. The Abkhazian and South Ossetian autonomous territories, which had been created in 1922, have both declared their independence from Georgia, but this independence is not internationally recognized.

A new Georgian constitution was approved in August 1995, which reinforces the current presidential-democratic form of national government with a strong executive branch and a unicameral 235-seat parliament. A constitutional court met for the first time in late 1996. The constitution does not address the status of Abkhazia and South Ossetia, but granted autonomous status to Adjara,

another separatist region that was reintegrated in May 2004.

In its short history of independence after the demise of the Soviet Union, Georgia underwent two ethnic conflicts resulting in two uncontrolled regions that further declared their separation from Georgia.¹ As a result of several conflicts and the nation's loss of support of the Soviet economy, Georgia encountered a series of severe economic crises throughout 1990s and well into the 2000s. The period was marked by a radical and disruptive decline in the country's living standards and economy. Economic progress has been slow to recover and has been sharply hindered by the continuing tense political relations with Russia. Russia was Georgia's main market for exports, such as wine, mineral water, and various agricultural products. The loss of that market segment was a huge financial blow and still remains a very serious obstacle for the Georgian economy. The severe and ongoing economic crises have caused a very high percentage of the population to live in deep poverty.

Geography

Situated in the south Caucasus, Georgia is a small country with about 4.4 million people and a land area covering 69,700 sq km. Georgia is largely a mountainous country with the Great Caucasus Mountains in the north and northeast and the Lesser Caucasus Mountains in the south. The Kolkhetis Dablobi (Kolkhida Lowland) opens to the black Sea in the west, and the Mtkvari River Basin lies in the east. The river-valley flood plains and the foothills of the Kolkhida Lowlands are covered with rich fertile soils that support a vibrant agricultural industry that has long been a source of much of the nation's economic wealth. The lowest point in the country is at the Black Sea coast in the west, and the elevation increases to 5,201 meters at the summit of Shkhara Mountain in the eastern region. Georgia is bordered by Russia to the north

and northeast, Turkey and Armenia to the south, and Azerbaijan in the east and southeast.

Political/Geographic Divisions

Georgia is divided among nine political regions: (Guria, Imereti, Kakheti, Kvemo Kartli, Mtskheta-Mtianeti, Racha-Lechkhumi, and Kvemo Svaneti, Samegrelo and Zemo Svaneti, Samtskhe-Javakheti, Shida Kartli), and two autonomous republics: Abkhazia, with its administrative center at Sokhumi, and Adjara, with its administrative center at Batumi. Abkhazia was once a part of Georgia but is no longer a recognized political element of Georgia's jurisdiction. A second similar area is South Ossetia, with its administrative center at Tskhinvali in the Shida Kartli region.

Demography

Georgians form the majority of the diverse population at about 83.8%. Other major ethnic groups include Azerbaijanians, who form 6.5% of the population, Armenians at 5.7%, Russians at 1.5%, and smaller numbers of Abkhazians, and Ossetians. Several even smaller groups also live in the country, including Assyrians, Chechens, Chinese, Georgian Jews, Greeks, Kabardins, Kurds, Tatars, Turks, and Ukrainians.

Georgia exhibits a significant linguistic diversity. The basic official language is Georgian and is unique in that it is the only language in the Iberian-Caucasian family that is written in ancient script with its own unique alphabet. Within the South Caucasian family, Laz, Mingrelian, and Svan also are spoken. Additionally, the numerous non-Georgian ethnic groups in the country often speak their own native languages. Georgian and Abkhaz are both official languages within the autonomous region of Abkhazia, where 71% of the population speaks the South Caucasian languages, 9% speak Russian, 7% speak Armenian, 6% speak Azeri, and another 7% speak a variety of

other languages. Several sources claim Georgia's literacy rate to be 100%.

Georgia's net migration rate is said to be a minus 4.54. Nonetheless, Georgia has been a destination for immigrants from all over the world throughout its independence. According to statistics compiled in 2006, most of the immigrants come from Turkey and China.

Today, most of the population practices the Orthodox Christianity of the Georgian Orthodox Church (81.9%). Other religions practiced in Georgia are Muslim (9.9%), Armenian Apostolic (3.9%), Russian Orthodox (2%), and Roman Catholic (0.8%). In a 2002 census, 0.8% listed other religions and 0.7% declared no religion at all.

Conclusion

Two inequities comprise the greatest constraints to accessing public information in Georgia. The foremost inequity is the limitation faced by the people who live in rural communities and remote locations, as well as the disproportionate urban/rural distribution of access venues. The disparity between urban and rural areas does not fully reflect the differences across different types of populated settlements. Within urban settlements, there is also a significant difference between Tbilisi (the capital) and five other big cities in Georgia, with the latter having limited access compared to the former. Furthermore, the six largest city communities, in turn, enjoy better access to information than the smaller communities (the centers of the districts). The several rugged mountainous regions of the country are highly underserved in terms of access to all vital services, especially to communication infrastructure, including ICTs.

The second principal inequity variable affecting public access to information relates to ethnicity. There is very little content in the native languages of the minorities. This issue is compounded because the majority of the minorities do not know the Georgian language.

METHODOLOGY

Team Qualifications

The research team that conducted this study of Georgia was composed of representatives of the IPM group of companies. The IPM organization was established in 1995 to focus on marketing and social studies. In 1998, the organization began using research techniques and international standards as it launched its first standardized product-panel research of television and radio audiences. This project was followed by successive projects that covered media monitoring, trade outlet research, outdoor advertising monitoring and studies, printed media research, a Media Marketing Index (MMI), price research, and other standardized products. IPM applies the recognized standards of the international research industry that can be validated and verified by research audit conclusions. In 2005, IPM implemented the ISO 9001 quality management standard.

Literature Review

To conduct the literature review for this study, the team examined 21 documents. These included published and online sources that provided source materials and data on ICTs for development and e-government, documentation containing venue-specific information, and relevant legislative and regulatory documentation.

The results and conclusions of two household surveys conducted by IPM in 2007 and 2008 were reviewed and used as a source of information from the general public. Georgian Internet portals created in the framework of the “Georgian Development Portal” project implemented by the Georgia Development Gateway Union (an NGO) were also used as a source of information.

Venue Selection

When the venue types to be studied were selected, two important criteria were observed. The first criterion was the current or potential role the venue types played or would play in public access to information. The venue types that were the main information providers were identified after consultations with key individuals and stakeholders. The second criterion was to consider the form of institutional base applicable to a venue type, that is, the venue should carry some of the characteristics of the hosting institution that would allow the research team to study its features, operational functions, users, etc.

Without a defining institutional base, it would be difficult to develop recommendations or define any initiatives that could be implemented to improve the access to information. For example, in rural areas, there are places (often in the centers of the settlements) where people usually gather and discuss various subjects – a common practice in the villages. As these community gatherings and discussions take place, there are no influences to affect the nature of the information provided in these places.

After screening all possible options, the study team determined that public libraries, Internet cafés, and the National Library of the Parliament of Georgia were the main providers of public access to information. Consequently, these venues were selected as the focus of this study.

Public libraries are the most widespread venue type providing public access to information. While Georgia was a part of the Soviet Union, the Soviet government created a huge network of public libraries. During that period, virtually every Georgian settlement was provided with a public library or a reading hall that served as a small equivalent to public libraries. The system remained unchanged for a long time in the post-Soviet era, and public libraries continued to function in almost all settlements until more recently.

In many rural areas, public libraries have nearly lost their role as effective sources of information, and many of them function only to provide a limited amount of printed materials, most of which are out of date. Some of the libraries have little or no user base. However, despite these weaknesses, the libraries remained as principal venues for this present study because of their very high potential to become the central focus for new programs that aim to improve access to information throughout the whole country.

The I. Chavchavadze National Library of the Parliament of Georgia is the biggest and the most important library in the nation. It is the country's only national library, and it is relevant to this study to consider it as a separate type of venue because of its size and the manner by which it is governed. Perhaps more importantly, it is relevant because, apart from being simply a library itself, it works with the Ministry of Culture and the Ministry of Education and Science to develop and implement policies and key decisions related to all Georgian libraries. It governs 19,400 member libraries and, with its 13 reading halls, it serves more than 2,000 users daily.

Internet cafés were selected because of the ways in which the services they offer their users differ from those provided by public libraries. Internet cafés offer access to information through ICTs and play a particularly important role for those people who can afford the services and who have the requisite technological skills.

Inequity Variables

Socio-Economic Status

Throughout the post-Soviet era, Georgia has undergone several economic crises that have produced significant disparities in the social and economic status of the population, with a corresponding high level of underemployment and unemployment. It is commonly accepted that as many as half of the total population lives at or

below the poverty level. When considering access to information through ICTs, the socio-economic status is a significant limitation because of the high price of computers and the fees of Internet service providers.

Educational Level

In Georgia, primary education is obligatory and accounts for the claims of a 100% literacy rate. This educational baseline increases the ability of the people to access general information through printed media in the different kinds of libraries. However, Georgia is a multi-national country with many ethnic minorities, who, for different reasons, read and write only their native languages, or who received primary education in other school systems. Because most public information in Georgia is available in Georgian, many of the ethnic minority people are underserved because they lack an adequate knowledge of the Georgian language.

During the Soviet era, the Russian language was featured in most of the information available to the Georgian public, which meant many Georgians faced a formidable language barrier for accessing information through traditional channels. To compound the problem, Georgians who were educated during that period, and many others educated since then, lack skills in reading or writing in English and, therefore, are also not able to access much of the information available on the Internet, or even information about computers, as most computer software is offered in English. In response to this issue, the Georgian Ministry of Education is introducing computers and computer science into the public schools, and the translation of basic computer software into Georgian is a part of that program.

The capacity of the public to use ICTs has a very significant impact on public access to information. Until recently, there were no computers in schools, and students were not taught any computer skills. The use of a computer as a study

aid was possible only in special computer centers, or by any person who might be financially able to own a personal computer. As a result, few people possess ICT skills.

A Ministry of Education project that supports public school computerization is in place, and the Ministry has set a goal that aims to increase the number of computers to where there is at least one personal computer for every twenty students. This level of distribution has been reached only in a very few schools located in some of the larger cities.

Age

Age can be an important and limiting variable among those seeking access to public information. Older people often have limited exposure to ICTs and usually have no opportunity to gain any technological skills. First, computer skills were not taught at schools or at any other institutions until recently. Second, the knowledge of the English language also tends to be lower among older people.

In general, access to public libraries is available only to people over the age of 15, but this age restriction no longer poses the same limitation on access to information as it once did. Computer access is now more commonly available in school libraries where information that interests those under the age of 15 can be accessed. Even some children's libraries in Georgia offer computer access.

Gender

Although gender inequity is a reality in Georgia, it is far less significant than the impact of socio-economics and venue location with regard to accessing public information. The recognition of gender inequity is a relatively new phenomenon in Georgian society, but several well-organized NGOs are drawing attention to the subject and consider gender to be an increasingly important factor of discrimination in contemporary Georgian

society. These NGOs point to the educational system as an example where the inequity is apparent; however, none of the respondents who participated in this study cited gender as a cause of inequity in public access to information. Those same respondents stated that there are no regulations, attitudes, and stereotypes that prevent either gender from accessing information equally.

Location

For the following three reasons, the location of a venue remains the most important variable when considering inequities that limit access to public information in Georgia:

1. There is a general lack of access to mass media in remote settlements. In mountainous settlements, television and radio broadcasting is especially limited. National television channels can be viewed only through satellite transmissions and antennas, and access to print media also is restricted. In some regions, regular access to print media is not available at all. In the majority of settlements beyond Tbilisi, no newspapers are distributed.
2. The library system is neither well developed nor well maintained. Public libraries in the outlying regions receive much less funding than those in Tbilisi and in the other five big cities. Consequently, libraries in most cases are not able to meet the information needs of the population. The National Library, with its huge resources, is located only in Tbilisi. A few other types of libraries, such as scientific and international foundation libraries, also are concentrated in the cities, and, again, especially in Tbilisi. The practice of inter-library loans is available only among the larger libraries in the largest cities, and then only on a very limited basis. The practice simply does not exist among the outlying regional libraries.

3. There is no ICT infrastructure in the regions beyond the few large cities, and there are no remaining functional telephone lines, especially in the remote communities and rural areas. Where telephone lines once existed, the system was destroyed during the various regional armed conflicts and has not yet been restored. These remote regions have no Internet connectivity, and the absence of telephone lines creates difficulties for disseminating government programs, especially those programs intended to introduce computers and ICTs into government institutions.

In light of these several disadvantages in the remote rural regions, the people in these areas are greatly underserved, have very little public access to information, and almost no access to ICTs.

However, it should not be concluded that venue location inequities adversely affect only the remote areas, because large segments within the urban areas also are underserved, although this is less so in Georgia's capital city of Tbilisi.

The residents of Tbilisi have much better access to public information venues than the people in any other city or settlement, but then the other five large cities have correspondingly better access provisions than the smaller communities. But, the differentiation at this level and below is not very significant. From this level, the downward scale in venues and facility access reaches the district centers (covering about 15 to 30 villages) and descends to the smallest rural settlements. At this point, public access to information other than by word of mouth does not exist.

Ethnicity

Ethnicity is the second most important variable affecting public access to information. Ethnic minorities are underserved because they often do not know how to speak, read, or write the Georgian language, and there is very little content

available in any of the minority languages that are so widely used in Georgia. Even the National Library has an extremely meager collection of materials in the minority languages.

Only a very few television and radio broadcasts in any minority language are transmitted, and the very small amount of printed material available in the minority languages is not widely distributed. The lack of knowledge of the Georgian language makes it difficult for these people to get current and needed information from local government offices, unless the officials there happen to be of the same ethnic background.

Data Collection

The research team conducted 25 individual interviews with key stakeholders and users in Tbilisi. The interviews provided information about the current conditions surrounding public access to information and explored the prospects for any future collaboration in planning new information access initiatives. The interview respondents represented several categories. The first category focused on non-government institutions working on ICT applications and development issues, freedom of information, and minority group issues. The second category covered government agencies and institutions in charge of public libraries and the reforms in the library network. The third category covered the government institutions in charge of implementing and coordinating e-government and ICT development, structural and institutional reforms, definition and monitoring of basic directions in the communication sector, post and telecommunication-informational technologies, and relevant legislative controls. The fourth category addressed the actual public access venues.

The information gathered through interviews was supplemented by the results of six focus group discussions with venue operators, employees, and users. The participants were selected from several different population categories, including

underserved communities and people with different ethnicity, age, education, income, residences, and other socio-demographic characteristics. The participants described the motivations of users for using specific venues to meet their information needs and described their attitudes and assumptions about the role of the venues. The focus groups aimed at venue employees played a key role in enabling the research team to understand the obstacles the venues are experiencing and the various options available that could overcome those obstacles. The focus group discussions were an effective means to determine the perceived information needs among typical segments of the diverse population of Georgia.

The 14 site visits revealed much about the venue work processes. The research team assessed the physical attributes of the facilities, monitored the whole process of service provision, and investigated the physical accessibility of the venues, infrastructure, and equipment, and the performance of the employees.

Secondary data analyses in the form of a literature review and other survey results also enhanced and validated the information already obtained. Secondary data were quite useful for defining the frequency and places of ICT usage, the availability of public libraries, and the condition of the infrastructure across the nation. The literature review also helped to provide information on previously conducted studies and related activities.

The data gained from the survey of the 792 users of the three venue types were an important adjunct to the results of the research. For the survey of the 792 users, the team used a semi-structured questionnaire developed by the University of Washington's Center for Information and Society and included common questions used in parallel studies in the other 24 countries.

The version of the questionnaire used in Georgia contained several additional questions developed specifically for use there. As in the case of the focus groups, the survey participants were also selected from several different population

categories, including underserved communities and people with different ethnicity, age, education, income, residences, and other socio-demographic characteristics. The data gathered in the survey covered the frequency of venue usage, the types of information sought, the trustworthiness of the information found at the venues, and the primary factors that might prevent users from getting better service.

OVERALL COUNTRY ASSESSMENT

Public Access to Information

Most of the people in Georgia list television and radio broadcasts as their primary sources of current news and information, and these sources are readily accessible to the general public despite their social and economic status. Many people also list their workplace as another very important source of information, reinforcing how social factors play a strong role in information access opportunities. This data is further indication of how unemployed people are underserved.

Public libraries have always been meant to be principal venues in which people can gain access to public information. Many years ago, the Soviet government created a network of public libraries and small reading halls that were distributed throughout Georgia, and that system, and the many subsequent changes and alterations, remain in place today. This public library network continued to function in almost all settlements and communities until recently. Since Georgia's independence, the country has experienced a long series of damaging economic crises that have caused significant disparities in the social and economic status of the population.

There has long been a very high level of unemployment, and huge numbers of people live below the poverty line. Corresponding funding issues in the library network, and also in the educational system, have made the libraries even less attrac-

tive to the population. Because of the extremely limited funds to support the library system, and, in some cases, a total absence of any funding, the libraries are already in a bleak position, with the future of the system being grim. For many years, the system received no new books or other print materials, although a few new acquisitions have been added more recently. The condition of the infrastructure is dismal, with many buildings lacking heat, electricity, or basic furnishings. The staff members have had to go years without any training, and the lack of ICT skills appears to be universal.

The Georgian communication environment underwent enormous changes in the transition to a market economy. The existing infrastructure could not satisfy the demands of modern communication technologies; the problem was exacerbated by the lack of investments and the slow modernization of the entire communication system. A few structural and institutional reforms in this sphere began to appear in 1999 in the liberalization of government, which opened up opportunities for privatization and economic competition.

The current Georgian government openly acknowledges that the creation and development of an information-based society, and the active integration of the country as an informed participant in the world community, would be a valuable achievement. Government spokespersons have stated that such an achievement would serve the country well, but the move to a modern digital communication system is expensive and has advanced quite slowly. Little progress is visible, and that progress is implemented only in Tbilisi and in a very limited number of the other large communities. Despite the few positive changes that have been made, ICT development in Georgia can be best characterized as fragmented and uncoordinated. One knowledgeable source said it is more of a "spontaneous computerization" than any systematic, single-minded process.²

Access, Capacity, and Environment

Access

The access to information through public libraries and Internet cafés is strongly affected by the user's socio-economic status, but in different ways.

Access to the National Library, and to some of the public libraries, requires payment of a small fee, although most of the public libraries are free. The fees are kept small to make the facilities affordable to more people, but access to information through ICTs is less widely used because the high cost of computers and the cost of providing Internet access are beyond the reach of so many people. Despite the fact that Internet access and ICTs are affordable to many private organizations and enterprises, most of the population still does not have access. This access limitation is especially true in rural and outlying regions. The relatively low demand for Internet access is also partly the result of the relatively low numbers of personal computers among the general public. The only people who have personal computers and complete access to the Internet are exclusively in the upper socio-economic strata. People with less disposable income have to go to Internet cafés to access the Internet, but the venues charge fees of about US\$1.5 per hour, which few people can afford.

Physical accessibility of the venues remains the single most important limiting variable determining access to public information through ICTs. This limitation continues to hinder access for three reasons: 1) There is little or no access to any form of mass media in remote communities and rural areas, 2) the library network is inadequate to serve the population, especially in rural areas, and 3) there is total absence of any ICT infrastructure in the remote communities and rural areas.

Capacity

Georgia has only one library school, the Library Department of the former Sulkhan-Saba Peda-

gological University, which has since merged with the Foreign Languages Institute and renamed the I. Chavchavadze State University. The vast majority of Georgia's librarians are graduates of this university, but because the profession lacks any significant popularity, the department often lacks students. For example, at the time this study was conducted, there were no students enrolled in the department. Despite the need for well-trained librarians, post-graduate courses and professional training for librarians have rarely been available for the past 15 years.³

The Georgian Library Association is struggling to fill this gap, recently launching training courses for librarians. The National Scientific Library also provides a modest amount of training for librarians. The issues covered by these various training projects include general courses in library services, bibliographic standards, classification standards, electronic catalogues, basic computer classes, inter-library exchange systems, fundraising, and project grant-writing methods.

Public libraries suffer from a severe lack of up-to-date books and paper-based materials. Most libraries are overloaded with irrelevant and outdated content, such as the stocks of politically oriented material left over from the Soviet era, as well as books containing outdated scientific information.

Capacity-building courses in ICTs, while limited, are available in several universities like the Georgian Technical University and the Tbilisi State University. A few private schools offer ICT training and courses in related technological subjects, but the technological base and the other teaching resources do not adequately meet contemporary standards or demands.

As this study was conducted, there were more than 2,500 web pages and sites registered in Georgia. With few exceptions, most of the web pages are static and are not updated to keep them current, and most are in the Georgian and Russian languages. Until very recently, Internet content in the Georgian language was problematic. There

were no standards for using the Georgian language in ICTs. Some site designers tried to apply Georgian fonts using different coding systems, but the results were never very successful. However, the situation was greatly improved after the Georgian government introduced a system of standardization using one of the codes. More recently, the Unicode (www.unicode.org) coding system also has been used successfully. These coding systems have permitted developers to add new forums, chat sites, and better web pages.

In November of 2006, the Georgian government launched the Georgian Governmental Network (GGN) project that was scheduled to end at the beginning of 2009. The purpose was to establish a network among the various government agencies and bodies, but the Georgian e-government project was also in the early development stages and the work was not well coordinated. Even though government web pages offer certain online services, public knowledge about the services and the opportunities to use them are very scarce.

Environment

The libraries in Georgia are united in the Georgian Library Association. The association's purpose is to establish and maintain cooperation among the member libraries, share information, and train the staff members, but the association's very limited financial resources severely curtail any effort to take large-scale measures.

Except for the National Library, which receives significant support from the government, and has an outstanding reputation in general, the other libraries in the public system have received very little support for many years, which accounts in large part for their poor condition.

Very soon after Georgia gained independence, it became clear that the new government was not able to maintain and support the inherited Soviet library network that was composed of about 8,000 libraries of various types and had a staff of 11,000

people. Furthermore, under the new regime, the old library system and its content was actually no longer appropriate, sustainable, or needed, and the Soviet library network, arranged according to department and territorial principles, was left to collapse.

The entire Georgian library system faced severe difficulties not only in the transition to a market economy, but also as a result of the extensive political and civil unrest that has gripped the nation. The library network was damaged dramatically during the various periods of civil conflict, and the damage was especially severe among the libraries belonging to the Ministry of Culture, which were the public libraries located all across the country. Their budget responsibilities and management were transferred to the local municipalities by Presidential Order N334 25.05.97.

The existing vertical system of library management was changed to a horizontal system, which gave the local municipalities the responsibility to decrease, abolish, or consolidate the activities of the library network. In many cities, smaller communities, and rural areas, numerous changes were then enacted, and most were made without regard to the needs, wishes, or interests of the public. One by one, village libraries closed, and a large part of the population remained without library service and any access to current public information.⁴

Information Needs of the Underserved Communities

The research team compiled a listing of the more important information needs of the underserved communities and rural areas. Some of the foremost needs are concerned with the following:

- Local events, including local employment opportunities and local government decisions and initiatives with regard to agriculture, infrastructure, commerce, and the economy.

- Active and proposed programs of international organizations aimed at the local infrastructure, business development, grants, and privileged credits.
- Civil rights issues, status, and responsibilities.
- Educational provisions and coarse materials. Of special interest are educational materials on ICTs in the Georgian language and the minority languages.
- Administrative procedures, particularly as they relate to ethnic minorities and the regions where the minorities live, work, and conduct their business and financial transactions.
- Social networking opportunities, communications, and relationships.

Economic, Policy, and Regulatory Environment

Only very rarely do libraries receive any funding from the government. The salaries for library workers were described on several occasions as “miserable,” and were said to be the main reason why qualified staff members leave the libraries to seek greater income in other jobs. Additionally, the problems in the education sector have caused a lowering of the quality of the library departments in the universities, further reducing the number of well-qualified library professionals.

In a response to the growing problems in the library network, the government announced its intent to improve the entire library system, and the Ministry of Culture, Monument Protection, and Sport, together with the Library Association of Georgia, began to develop a reform movement, but little has been accomplished.

A complex host of legal and regulatory elements govern public information access in Georgia, beginning with the Constitution and extending to the General Administrative Code of Georgia, the Criminal Code of Georgia, and the Code of Administrative Law Violations, as well as several

specific laws, such as the Law on Press and Other Means of the Mass Media, the Law on Electronic Communications, the Law On Broadcasting, the Law on Freedom of Word and Expression, and the Law on Advertisements.

The actual legal basis under which libraries operate is as complex as the laws that actually regulate the libraries. After Georgia gained independence, libraries struggled to continue functioning. It was clear that to salvage the system and stop the disorganized cuts and reductions in the overall network, the country needed a well-thought-out and organized effort to improve the libraries while protecting the rights of the people as guaranteed by the Constitution.

It was also clear that the administration of Georgia's entire cultural realm needed a carefully defined and fully implemented legal basis. The work on the draft law governing the libraries began in 1994 and 1995. Specialists in library science worked closely with the legislators to prepare "The Law on the Library Work." The law guaranteed the rights of citizens to access the services of the public libraries and further guaranteed the protection of the libraries.

The maintenance and development of the National Library as the premier library facility in Georgia is guaranteed by "The Law on the National Library of the Parliament of Georgia," passed in 1997. All of the various laws mentioned here, along with "The Law on the Cultural Heritage," passed in 1997, form the legal basis governing the Georgian library system.

The joint issues of maintaining the library network and increasing the effectiveness of libraries were discussed in a governmental session heard on January 11, 2001. At that time, the commission for maintaining the library system was created and was specifically tasked to initiate a continuing program to maintain and develop the library network. Subsequently, "The 2003-2005 Years' Concept on Maintaining and Development of the Georgian National Library Network" was approved by the "President of Georgia Decree

Number 246" on January 7, 2003. This concept document contains specific activities to maintain and develop the libraries. The document, as well as the laws governing the libraries, has not yet produced significant improvements in the network's regulation or maintenance.

The decentralization of library administration has weakened the role of the policy and regulatory structures designed to implement the library policy. At the time this study was conducted, the library network's functional operations were driven entirely by economic and social concerns. The libraries appeared to respond to the influences of the market economy, and most of the librarians lack appropriate social protections.

According to the July 3, 2007, Government Resolution Number 131, the local libraries in municipalities (cities, communities, or villages) are considered to be under the jurisdiction of the respective individual municipality. Accordingly, the libraries operating in almost all regions have been changed into non-profit and non-commercial legal entities.

Given this jurisdictional shift, the legal basis of the library network needs to be re-addressed and corrected. Well over a decade has passed since the first law was enacted, and both of the principal library laws should be amended, with the draft law "On the Obligatory Samples" elaborated. The gaps in the operational legal basis negatively affect not only the individual libraries, but the network as a whole.

Collaboration Practices Across Venues and Future Opportunities

Because library funding and new acquisitions are critical to the success of the libraries, and because of a lack of funding and resources provided by internal Georgian providers, the libraries have turned to private publishing houses for help. A number of publishing houses and individual authors permanently gift newly published books to certain libraries.

There have also been instances when various international organizations have funded certain specific library initiatives, but these are most commonly single initiatives and are in effect for a specific period of time.

Buzz Factors

The Ministry of Culture Monument Protection and Sport of Georgia recently launched a set of activities designed to rehabilitate the library network, renew the book funds, and equip non-urban libraries with computers, following a governmental meeting conducted at the ministry on January 14, 2008. At that meeting, the minister met with the heads of regional cultural service institutions and library managers.

The discussions focused, in part, on the outlying regions where much the basic library network exists, and where many librarians worked only part-time and were paid salaries of only 40 to 50 GEL. Subsequently, the Ministry of Culture, the National Library of the Parliament of Georgia, and the Library Association of Georgia jointly conducted a statistical study of the situation and began to develop recommendations to improve the situation.

In the outlying regions, the fate of the libraries was generally in the hands of the individual heads of the local administrations. In the more densely populated places where the traditional library network was preserved, the restoration efforts faced fewer problems. A serious problem exists in those areas where libraries were actually abolished in violation of all the legal and regulatory acts. It is a sensitive issue that has not been resolved.

Despite the declared good intentions and announcements of the government, librarians steadfastly maintain that their profession lacks any degree of proper respect. As evidence, they refer to the extremely limited amount of training available for librarians, and remind listeners that it is commonplace for libraries to be staffed with people who have no special related education. The

salaries are very low, even by Georgian standards. The librarians emphasize their claims about the unpopularity of the profession by noting that in 2008, there were no students in the universities who were studying library science.

Legitimate Use: Who Decides What Determines Legitimate Use of Information Resources

In the National Library, and in the very few public libraries offering ICTs, chat sites and social networking spaces are regarded as trivial and are not welcomed. However, it cannot be said that they actually are prohibited because the employees of these venues do not usually monitor how visitors use the ICTs.

There are no precisely defined “legitimate” uses of ICTs in Internet cafés. The only prohibition enforced in many Internet cafés is that users cannot install new software without the permission of the operator or administrator.

Shifting Media Landscape

Based on the results of the “Study of Customer Market of Internet-Telephone Services; Household Survey for Ward Telecom,” conducted by IPM in May 2008, 47.8% of the urban population over the age of 15 uses mobile phones. Mobile phones are especially important to the rural population, and in most regions landline telephone service does not exist.

There are two main mobile phone service providers in Georgia, and, together, they report a total subscriber base of more than two million users. Mobile phones are used almost exclusively for communication purposes and not to meet information access needs. For example, according to the 2008 IPM study, only 0.5% of those who access the Internet achieve access through a mobile connection.

VENUE ASSESSMENT

Overall Venue Landscape Assessment

During the Soviet era, each settlement was supposed to be provided with public libraries and appropriate materials. As a result, most Georgian settlements, regardless the type, size, and location, have libraries located in the center of the settlement to facilitate easy access. This widespread distribution of the public libraries, combined with their accumulated experience in providing a ready access to information, is one of the greatest strengths of the library system. However, the serious decline in available funding since the collapse of the Soviet system caused these libraries to gradually lose their important role as the principal venues for public access to information, particularly for libraries in rural settlements.

During the fieldwork for this study, many of the surveyed library staff members told the interviewers that in rural areas there were often no library visitors for several days or, if any, only one or two appeared. The respondents said that the condition is the result of an extreme lack of updated and applicable content and a lack of funds. Despite this weakness, libraries are somehow still viewed as information venues, and the respondents were confident that people would start using the libraries more often, as soon as the content met their needs.

An important strength of public libraries, unlike Internet cafés, is that most of them are organized under a single institutional structure. This structure makes it easier to implement any kind of initiatives than it would be in unorganized venues like Internet cafés.

Internet cafés are considered to be the venues that provide public access to the latest information, but the cost of their services is unaffordable for most of the public. Also, there are very few Internet cafés in rural areas, which further contributes to the increasing level of inequity between

urban and rural settlements. Moreover, Internet cafés are privately owned and are not organized in any form of network. Consequently, it would be difficult to implement any initiatives aimed to improve the level of public access to information at these venues.

The National Library in Tbilisi is the single most important venue in Georgia providing access to information; the library regularly serves thousands of people. For several years, the National Library has enjoyed increased financing, and, as a result, the library can afford to offer its users a variety of new materials. Although there is still a shortage of new foreign content, it provides almost all of the newest content produced in Georgia, and also offers ICTs. Access to the library services has been offered without fees since the beginning of 2008.

While the National Library is an exceptionally valuable resource to the public, the services are, unfortunately, available only in Tbilisi, and the library offers only the barest minimum amount of content in any of the minority languages.

Access, Capacity, and Environment for Venues

Access

Public Libraries

There are 1,396 public libraries throughout all of Georgia, the largest being the National Library of the Parliament of Georgia in the capitol city of Tbilisi. There is one moderately large public library in each district center, and several smaller public libraries are scattered among the settlements in other districts.

Very few public libraries, other than the National Library, offer any access to information through ICTs, and those that do are only located in the capitol and district centers. There are about five libraries offering ICTs in Tbilisi, and only five to seven in all the rest of Georgia. Those

are in Gurjaani, Telavi, Gori, Khashuri, Zugdidi, and Batumi.

Access to many public libraries is free, and those that do charge a fee try to keep the fee small enough to make access affordable to the greatest possible number of people. Based on a quantitative survey of library users, the amount charged did not appear to be a significant barrier.

Based on focus-group discussions, a significant percentage of the population does not consider public libraries to be particularly valuable sources of information because of the lack of up-to-date and pertinent content. Consequently, many respondents said that even the very low fees did not make it worthwhile to try to use the poor selection of services and content.

Internet Cafés

The physical distribution of Internet cafés is especially important when determining the ability of the users to access the venues; however, there are no official data to describe the distribution of the venues among the several administrative areas, or even where they are located in urban and rural communities. Although the results of the Settlements Infrastructure Study conducted in 723 settlements (56 in urban areas and 667 in rural areas), selected proportionally according to the population of the regions, gave a reasonably clear picture of the geographic distribution of Internet cafés. According to the results of the study, 35 urban settlements out of 52 reviewed had at least one Internet café. The remaining four urban settlements were larger cities, each one with several Internet cafes. But in the rural areas, only 4 out of 667 settlements have Internet cafés.

Internet cafés are generally venues advanced in their ability to provide access to ICTs. Almost all possess the technologies necessary to meet the wide range of information access needs and other ICT-related services, such as printing, photocopying, and CD burning. Affordability, however, is the main limiting factor that undermines the accessibility of Internet cafés.

National Library

From a physical standpoint, the National Library is easily accessible to the people in Tbilisi, but the library has no branches in any other location. The library is situated in the center of Tbilisi, and is accessible by public transportation.

Because of increased funding over the past few years, the National Library is well equipped with modern ICTs. An Internet club holds its meetings in the library and offers its members Internet access and other computer services. The library also has an electronic catalogue and archive that contains e-books. From a technological perspective, the National Library is the most advanced venue, offering public access to information in all of Georgia. Additionally, the library offers all of its wide variety of services free to its registered members; registration also is free.

Capacity

For anyone who wants to study library science, there is ample opportunity in Georgia, although post-graduate courses and professional training programs have not been readily available to librarians for the past 15 years. Very little training is offered either by the Georgian Library Association or the National Scientific Library, and this situation is not expected to improve in the foreseeable future.

Public libraries differ radically, both in the size of their facilities and also in the size of the staff. For the purposes of this study, libraries were grouped in three categories: 1) Small settlement libraries with one or two employees, 2) central libraries in the districts with 15 to 20 employees, and 3) city libraries with 50 or more employees.

ICTs play an important role by providing access to the types of information not accessible through other venues. For example, ICTs are sometimes the only way to obtain modern foreign academic content or information on current global developments. The importance of ICTs is growing rapidly as more and more people begin to use them and

comprehend the value of the content available on the Internet.

ICTs are equally important as a means of communication. Georgia is a developing country and has many citizens who have left the country to work or study – and ICTs can often be a useful and relatively inexpensive way for those people to communicate.

Internet cafés are the most widespread public venues offering access to ICTs, and while they sometimes provide slightly different services from one venue to the next, there is a degree of commonality among them.

- Internet cafés provide the services and information that public libraries most often lack, especially ICT services and the information those services can deliver.
- Most Internet cafés are located in urban areas, which highlights the inequity across urban and rural settlements.
- The access fees charged by Internet cafés are so high that many people in the lower income groups are unable to use the services.
- Almost no regulatory controls exist to govern Internet café operators, and the operators are not required to have any particular level of education to conduct their business. However, most operators do have good ICT skills.
- ICT literacy levels differ significantly among the users of different venues and across urban and rural settlements. Internet café users and the National Library users have much better ICT skills than the average public library users, but the users in urban venues (both public libraries and Internet cafés) have much higher ICT literacy levels than people in rural areas.

Working at the National Library is the most prestigious employment a Georgian librarian can hold, reflected in the qualifications of the employ-

ees, especially when compared to the qualification levels of the employees in any of the other public libraries. The National Library offers an increasing number of training programs. As the director of the library, Boris Gagua stated that they have worked out a program under which all of the librarians on the staff are required to undergo professional on-the-job training courses.

In terms of relative content, the National Library is the most advanced venue among all of the venues in Georgia. For example, it has the largest collection of art or scientific works produced in the country. As a result, the library contains a huge amount of locally important content.

The National Library enjoys an excellent reputation among its users and the entire population of Georgia.

Environment

While the National Library now receives a high level of support from the Georgian government, there was very little support given by government institutions to any of the libraries for many years. The ministries in charge of public libraries now state that they are committed to improve the situation and to make the libraries more inviting by instituting radical reforms. So far, there have been no significant improvements, with the most visible instance of change coming when small libraries were merged. The mergers resulted in the overall reduction in the number of operating libraries and the corresponding reduction in the number of employees. Everyone involved admits the need for reforms, but these obvious changes have caused a high level of dissatisfaction among library workers.

Internet cafés are privately owned businesses and operate commercially for profit. The Georgian government claims to be committed to creating favorable free market business conditions, especially for small businesses. Internet cafés, as small businesses, stand to benefit directly from this commitment.

Revenue Streams for Publicly Funded Venues

Public libraries operating in Georgia are under the supervision of different governing institutions. Some libraries are responsible to the Ministry of Culture and others are the responsibility of the local municipality where they are located. Consequently, the operating budgets for these municipal libraries are allocated from local revenues and differ greatly from community to community.

Comparative View of the Important Venues in Georgia

A comparison of the venues in Georgia that provide public access to information has led to the following conclusions:

- Public libraries are the most widespread venues and operate within an organized network. In general, they offer moderately good physical access. Unlike other public venues, they are widely established in both urban and rural settlements.
- When public libraries charge access fees, the very low fees are generally affordable to most of the population.
- The public libraries, and especially rural libraries, suffer from a significant lack of useful and current content, particularly with regards to information available through ICTs.
- Internet cafés provide the services and information that are least available in the public libraries, especially ICT-based resources.
- The vast majority of the Internet cafés are located in urban areas, which reinforces the inequity that exists between urban and rural settlements.
- Internet cafés charge fees that are typically set at levels that prevent access by people in lower income groups.

- The National Library is the most important public access venue in the country. The library offers a large amount of printed content and free access to ICTs to registered library members. Registration is free. The library is located only in Tbilisi; there are no branches.

SUCCESS FACTORS AND RECOMMENDATIONS

Success Factors

Public libraries are the most widely used venues that provide access to public information; however, they suffer from a variety of problems and are in need of extensive restoration and improvement. The severe lack of funding is the main problem that prevents them from adequately maintaining the infrastructure, the content, and a well-qualified staff. These deficiencies affect the entire library network, but are especially noticeable in the rural areas.

The introduction of ICTs in all libraries would be a good investment and would increase the public's access to information, which could improve the quality of life. In addition, the advantages of access to ICTs would be especially helpful to the people in the underserved communities and rural areas. The rural populations, and especially the ethnic minorities, who are considered to be the most underserved large groups, lack computer skills. Therefore, to enable them take advantage of ICTs, it is necessary to raise their ICT literacy level through computer training.

To improve the ability to access public information and increase the overall level of computer literacy, the following issues must be successfully accomplished:

- Renovate and provide consistent ongoing support at all levels to public libraries and provide them with relevant and up-to-date content, especially in underserved areas.

- Create relevant content in the languages appropriate to the individual libraries, especially in the underserved communities.
- Equip all public libraries with ICT-based technological services and infrastructure.
- Train the public to understand and use computers.
- Establish and adequately fund and support venues offering ICTs in rural areas.
- Establish reasonable pricing and fee structures to enable a much greater percentage of the public to access ICTs in the public venues.
- Develop a much broader assortment of web pages, containing locally relevant information in the appropriate local languages.
- Develop a practical and useful legislative basis for ICTs that will encourage ongoing technological development.
- Improve the legislative basis for the public library operational functions.
- Develop web pages with relevant content in local languages that will be accessible across different venues.
- Provide high-speed Internet connectivity nationwide.
- Provide capacity building programs and training on information gathering techniques for venue operators.

Recommendations

The following specific key recommendations emerged from this study:

- Update and increase the locally relevant content in the public libraries, especially in those libraries located in underserved communities, and provide more new materials, as well as materials in languages appropriate to the locality.
- Introduce ICTs into public libraries in underserved communities.

- Conduct ICT-based capacity-building programs and training courses for underserved communities.
- Develop and expand the ICT infrastructure in rural settlements and provide high-speed Internet connectivity nationwide.
- Improve the legislative basis both for ICTs and the public library network.

CONCLUSION

Using and developing contemporary ICT-based applications, services, and technological advancements is one of the conditions necessary for the successful development of an information-based society in Georgia. Despite claims by the Georgian government that it recognizes the importance of creating and supporting an information-based society by introducing modern technologies, the rather precarious status of the country's economic condition has caused Georgia to fail to reach its technological goals. As a result, Georgia has remained below the technological levels achieved by most other European countries and is constrained by the public's limited ability to access the public information that would improve their quality of life.

ENDNOTES

¹ In August 2008, scattered armed conflicts erupted in the breakaway regions, resulting in a full-scale armed confrontation between Russia and Georgia.

² Interview with Nodar Napetvaridze, founder, CIMS consulting, UNDP project consultant

³ Interview with Irakli Garibashvili, president of Georgian Library Association

⁴ Interview with Guram Takniashvili, head of the I.Chavchavadze National Library of Parliament of Georgia methodology department

Chapter 29

Public Access ICT in Sri Lanka

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EXECUTIVE SUMMARY

Sri Lanka is making a concerted attempt to move into a knowledge-based economy. As an important aspect of this strategy, the government is using ICT as a lever for “reducing poverty, promoting growth, and fostering social integration and peace.” Sri Lanka has faced protracted political and ideological conflicts for twenty-five years that, at times, have turned violent, but the people and the economy have been resilient, even though progress has often been slow.

In 2004, Sri Lanka initiated its national program to expand digital technology applications through institutional reforms, regulatory changes, infrastructure development, and streamlined government processes. Given the purpose of the program, Sri Lanka was invited to participate in this study.

The governing objective of the research was to assess the public venues that provide access to information, and to determine the purposes for which these venues were used and how ICTs are being used to meet the information needs of underserved communities. It is expected that the

findings of this study will feed into policy and make individual venue operators consider possible ways that might serve to improve the information services they provide.

Methodology

The study, which was initiated in December 2007, was divided into two phases, beginning with a workshop hosted by the Technology & Social Change Group (TASCHA, formerly known as CIS, Center for Information and Society) at the University of Washington for the researchers from the 25 countries selected to participate in the study. The first phase of the study aimed to build a broad overview of the information venue landscape in each country and featured literature reviews, discussions with key stakeholders, and visits to different types of venues. In a second global workshop, the TASCHA team presented feedback on the analyses of the data obtained in the first phase. In addition, the workshop participants discussed research instruments and the performance of the second study phase, which featured surveys and focus-group discussions.

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Findings

The study results reveal a number of positive developments in Sri Lanka:

- Prominent among the people who access information from the venues in underserved communities are micro- and small-scale entrepreneurs, small farmers, low-income households, and those people who lack the skills to benefit from emerging economic opportunities and programs.
- Public libraries are increasingly reaching out to underserved communities by providing access to information, especially by offering print materials to a clientele, which has long formed the traditional library user base. Students are the most active library users. The Nenasala centers are centers that focus on providing connectivity and non-connectivity-based ICT services, while the specialized information centers adopt a different model to disseminate information through a network of intermediaries. Wireless broadband deployment, in conjunction with the EasySeva initiative, is becoming a franchise model for last-mile connectivity and as a means to encourage and support ICT entrepreneurs. EasySeva venues introduced “new members” from underserved communities to the information networks through targeted interventions.
- The introduction of Nenasala centers to underserved communities has opened a window of opportunity to acquire computer skills, especially among the young people of poor households.
- Mobile telephony has spread rapidly, and the comfort level among the public in using mobile technology appears to be high.
- The ongoing e-government projects that focus on providing public information services have benefited underserved commu-

nities. This picture is particularly true with regard to venues such as the Nenasala centers that provide 1) localization through the development of UNICODE fonts that allow local languages to be used for transmitting and accessing information, and 2) the availability of a web-page translation tool, such as a Firefox plug-in in Sinhala and Tamil.

- Alternative media and citizen journalism websites in local languages have emerged and experience a relative freedom of expression. The convergence of technology has fostered citizen journalism, and increasing numbers of bloggers are online.

Constraints

Throughout the course of the study, the research team observed several constraints to the ability of the public to access information:

- The sites selected for many of the venues are poor. Resources and staff skills needed within the new information environment are noticeably inadequate, and this issue is compounded by a distinct lack of organized location and community-specific information.
- Users typically lacked information literacy, and the new ICT-enabled venues are poorly used when compared with public library use.
- The staff at the venues rarely have an adequate understanding of the information needs of the community they serve and of their role in providing appropriate services to meet those needs in a proactive manner.
- Venues function as “stand-alone” entities without collaboration and networking. Furthermore, the majority of the respondents use only one facility.

Success Factors and Recommendations for Future Research

The legal and regulatory environment surrounding public access to information venues is favorable. Foreign investment in the telecommunications sector has increased, aiding the development of infrastructure and contributing to the growth of landline and mobile services, although penetration remains low. Notably, the increasing number of mobile users could serve as a basis for the greater adoption of ICTs.

Systemic problems could be partially alleviated by 1) adopting UNICODE fonts, 2) introducing a web-page translation tool, such as a Firefox plug-in in Sinhala and Tamil, and 3) adding a Google search interface that allows searches of local language websites encoded in UNICODE. These developments would allow users who are not proficient in English to access information. A few FOSS (Free and Open Source Software) and UNICODE communities already exist.

Indicators need be developed that will assess progress towards universal access. These indicators should extend beyond infrastructure and connectivity to look at practical ways to overcome inequalities in access and to institute appropriately targeted solutions. Demand-side indicators are particularly important, and both quantitative and qualitative approaches could be adopted.

More venues will be established in Sri Lanka, and many of them likely will function without a solid understanding the socio-economic and cultural issues of underserved communities. Therefore, follow-up research will be needed to further evaluate the information needs and information-seeking behavior of the users.

COUNTRY OVERVIEW

Introduction

The island nation of Sri Lanka, once called Ceylon, lies strategically off the southeastern coast of the Indian subcontinent in the Indian Ocean. This compact country has 62,705 sq km of land, including several islets, 2,905 sq km of inland of water, and a 1,340 km coastline. North-south, Sri Lanka is 435 km long and is 225 km wide. The terrain is mostly low, with flat to rolling plains, but a mountain range in the southern interior rises to 2,524 m. Numerous rivers flow from the mountains, and the largest flows into a natural harbor to the east. Because of a rain-shadow effect, Sri Lanka has two main climatic zones – the southwestern “wet” zone and the northerly “dry” zone. There also are two dry coastal strips in the southeast and northwest.

From a political standpoint, Sri Lanka is a unitary state with a democratically elected legislature and an executive presidency. For administrative purposes, the country is divided into 9 provinces comprising 25 districts that are further subdivided into 323 divisions consisting of 14,013 *Grama Sevaka* divisions. Each *Grama Sevaka* division contains 5 to 6 villages and 250 to 300 families. Local government entities are composed of municipal, urban, and *pradeshiya sabha* (semi-urban and rural) councils that operate under the provincial councils, created by a constitutional amendment in 1987 to enable the provinces to respond more effectively to local needs.

Sri Lanka is attempting to move into a knowledge-based economy. The announced plan is to be fully integrated into the global market and, at the same time, to overcome the deep schisms that exist within the country by adopting an e-development strategy and using ICTs as a lever for “reducing poverty, promoting growth, and fostering social integration and peace.” In 2004, Sri Lanka initiated a national program to expand digital technology through institutional reforms,

regulatory changes, infrastructure development, and streamlined government processes.

A striking feature of the Sri Lankan economy is its rapidly changing composition and how that shift is reflected most prominently in contributions to the country's GDP. The changes are driven by the growing dominance of the services sector and the corresponding declining contributions from the agricultural sector.

Telecommunications, which have led the services sector growth, are expected to maintain that momentum. Expansion in telecommunications coverage is due in large part to the use of wireless networks with CDMA wireless technology, the introduction of advanced technology and value-added services, increased capital investments, and increased competition and affordability. The major contribution to the increase in telephone density is attributed to the increase in mobile phone use. Internet access has also increased substantially, but increasing inflationary pressures have limited the use of ICT services. There is high-level political support for using ICTs to encourage development and to empower the people. This support is especially evident in the rural population, but interestingly, this same degree of political support does not exist for the development of other public access information venues, such as libraries.

Several significant factors have a direct negative impact on the use of ICTs in Sri Lanka. The country is predominantly rural, and nearly 75% of Sri Lankans live in the rural and estate sectors, and 42% of the population lives on less than US\$2 a day, while another 6% lives on less than US\$1 a day. Women head an estimated 21% of all households and 15% of all households exist in poverty, although the poverty level has declined over the years. The mean household income per month is US\$262, and the Gini coefficient of household income is 0.49. There are strong regional economic disparities and pockets of great deprivation exist, especially in landlocked mountainous areas, in remote locations that lack

basic infrastructure and services, and in districts caught in the political and ideological conflicts.

Geography

Sri Lanka lies off the southeastern coast of India in the Indian Ocean. It has 62,705 sq km of land, including several islets, 2,905 sq km of inland of water, and a 1,340 km coastline. North-south, Sri Lanka is 435 km long and is 225 km wide. The terrain is mostly low, with flat to rolling plains, but a mountain range in the southern interior rises to 2,524 m. Numerous rivers flow from the mountains, and the largest flows into a natural harbor to the east. Because of a rain-shadow effect, Sri Lanka has two main climatic zones – the southwestern “wet” zone and the northerly “dry” zone. There also are two dry coastal strips in the southeast and northwest.

Political/Administrative Divisions

Sri Lanka is a unitary state with a democratically elected legislature and an executive presidency. For administrative purposes, the country is divided into 9 provinces comprising 25 districts that are further subdivided into 323 divisions, consisting of 14,013 *Grama Sevaka* divisions. Each *Grama Sevaka* division contains 5 to 6 villages and 250 to 300 families. Local government entities are composed of municipal, urban, and *pradeshiya sabha* (semi-urban and rural) councils that operate under the provincial councils, created by a constitutional amendment in 1987 to enable the provinces to respond more effectively to local needs.

Demography

In mid-2009, the population of Sri Lanka was estimated to be 20.5 million, with the Sinhalese in the majority at 73.8%, followed by Sri Lankan Moors at 7.2%, Sri Lankan Tamils at 3.9%, Indian Tamils at 4.6%, and other ethnic groups at 10% in

2001. Eighty percent of the total population lives in rural and semi-urban areas.

Seventy two percent of the population is Buddhist, but Islam, Hinduism, and Christianity also are represented. Except in the Northern Province, from which all ethnic groups except Tamils were expelled by separatists, the other provinces have an ethnic and religious mix. Sinhala, Tamil, and English are the major languages, and 92% of the people speak Sinhala, while 81% can read and write the language. Fifteen percent of the population can speak English, and 19% can read and write it.¹ Sinhala and Tamil hold official status, while English serves as a link language.

Constitutional provisions give parity of status to women and men. Gender disparities have been virtually eliminated in primary, secondary, and tertiary education and in youth literacy. The gender gap in literacy has narrowed to reach 90% for females and 92.8% for males. However, the labor market inequalities are reflected in lower workforce participation rates and high rates of unemployment. Women exert only a minimal presence in political and decision structures.

Many interlinked elements have a direct impact on the socio-economic conditions of the population. Among the more outstanding elements are the conditions in the traditional urban/peri-urban and non-urban divisions, and in the areas that have been directly affected by conflict, varying climatic zones, and terrain. The road and rail network and telecommunication facilities have combined to reduce the isolation of many remote areas, while the administrative structure includes *Grama Sevaka* (lowest level of administration) offices in nearly 14,000 villages to serve the rural population. Extensive healthcare facilities and an extensive network of schools provide essential services to the majority in the periphery. However, the difficulties faced by the people differ dramatically according to the areas in which they live. The national government recognizes these difficulties and is aware of the lagging local economies and has responded by initiating several

corrective development programs in the *Grama Sevaka* divisions.

Triggered both by regional disparities and poverty, internal migration from rural areas has increased over the years, and the primary destination has been to the Western Province, which includes Colombo. This migration has created an over agglomeration in the metropolitan area and its suburbs. Although the incomes earned by the majority of these migrants are typically low, they support households, but wage differentials still have largely drawn the better educated people from the rural areas. This migration, in turn, continues to have a negative effect in the development of lagging areas (World Bank, 2007). Private-sector earnings are a major source of foreign exchange earnings for the country. “Push” and “pull” factors have resulted in an estimated one million Sri Lankan men and women working overseas at any given time.

Conclusion

In summary, the combination of the country’s small population and low population density beyond the Western Province negatively affects the cost of providing connectivity to non-urban areas, where the majority of the population resides. The central hills also present significant challenges to connectivity. Content development and modes of information delivery have to be considered within the context of the geographical, social, ethnic and language diversity, gender issues, and the considerable barriers that hinder accessing information by people who live in underserved communities.

RESEARCH METHODOLOGY

Research Team Qualifications

Leelangi Wanasundera, a Board Member of the Centre for Women’s Research, the designated principal researcher, has a degree in econom-

ics and a postgraduate qualification in library and information science. She has worked as a librarian in Sri Lanka and in other countries. She has conducted research studies in Sri Lanka and in the Asian region to assess the impact of information and communication technology on disadvantaged groups, with an emphasis on the interests of women.

Swarna Jayaweera, Joint Coordinator of the Centre for Women's Research, Emeritus Professor of Education, University of Colombo, has extensive research experience and works as a consultant to UN agencies and to bilateral agencies in Sri Lanka and throughout Asia.

Thana Sanmugam, Joint Coordinator of the Centre for Women's Research, has postgraduate qualifications in mathematical statistics. Her expertise lies particularly in designing and conducting surveys and analyzing and interpreting their results.

Literature Review

The literature review performed in conjunction with this study was couched in the common analytical framework. The types of literature reviewed included general literature on ICTs, the current ICT status as it applies in developing countries, and information and communication technologies for development (ICT4D) literature. Literature specifically related to Sri Lanka included 1) background information on libraries, with a special focus on public libraries, 2) other types of public access venues in the country, 3) studies conducted to identify the information needs of rural and urban populations, and 4) other research studies that point to the need for providing access to information to these groups, and the types of information that they need. In addition, the study team members reviewed the available studies, evaluations, assessments of the public access to information venues, as well as the pertinent regulations, official documents, and statistical data.

Venue Selection

The venues selected for this study were determined primarily by their geographical coverage, the ICT-based services available in each, the clientele, the types of venue ownership, and the innovative approaches used to disseminate information. Consequently, the study focused on public libraries, Nenasala centers, which are specialized knowledge centers comprising the Vidatha Resource Centers (technology) and Rural Agricultural Knowledge Centers, and commercial ICT-based information venues, such as Internet cafés and EasySeva.

A vast amount of information also resides in a number of other venues, such as academic, technical, school, *pirivena* (temple) libraries, research libraries, and resource centers maintained by non-government organizations. However, these venues were excluded from the study because access to those sites is restricted to a selected clientele. One venue identified in the first phase of the study – the Gemidiriya People's Companies) – was also excluded because public access to information services, while possible in some instances, was not extensive.

Among the non-governmental organizations that maintain venues, the Sarvodaya Shramadana Movement has the most widespread network. The Sarvodaya model was established to disseminate information to rural and estate communities using traditional media by linking 171 Village Information Centers with the 31 district telecenters that function as information hubs.

Inequity Variables

Dispite a number of ongoing and established efforts to the contrary, the people of Sri Lanka are confronted with great regularity by a wide range of inequities in the nation's socio-economic and political environment. The results of these efforts to improve the conditions have been mixed. One of the most glaring among these inequities is the

fact that income and consumption poverty still affect 15% of the total population. Rising economic inequality has been one of the reasons attributed to wide intra- and inter-regional disparities in growth.

Spatial factors and education have a strong impact on inequity. Many people are confident that the poverty level will be improved significantly if and when there is a significant improvement in accessibility to year-round usable roads, transport and telecommunication facilities, and the consequent improvement in connectivity to markets and urban centers (World Bank, 2007).

Access to education also has a strong correlation with the disadvantaged and impoverished people. Households are poorer when the education of the household head has not gone beyond the primary level. About 2% of all children from 5 to 14 years old are out of school, about 8% do not complete secondary and 9% of the total adult population is illiterate. These numbers persist despite overall high literacy levels and minimum gender disparities. Furthermore, Sri Lanka has an almost universal primary school enrolment, and the junior secondary schools have 82% completion rates.

The people who are less well educated generally are concentrated in remote and geographically isolated rural communities, including plantations, low-income urban neighborhoods, and in some of the conflict-affected areas. Illiteracy is higher among women (9.4% as compared with 7% among males) and among Tamil plantation workers of recent immigrant origin and rural Muslims in the Eastern Province.

The changing population structure has seen an increase in the percentage of the people who are over 65 years old. The majority of the elderly are women, and many of them continue to lead active and productive lives, but services directed at this group are limited, and their information needs have not been a focus.

Women have gained from the changes and improvements brought about by the new social policies. Women have equal access to education, health, and other services. Regardless, women

are disproportionately affected by the structural adjustment programs introduced more than two decades ago, and macro-economic policies have not reduced the disadvantages in spite of the opportunities to participate in economic activities.

There is no discrimination in access to any of the public access information venues examined during this study. But, low levels of venue use are most often the result of low purchasing power, illiteracy, near absence of an information culture, perceptions of the older generation that IT is the domain of the young, and socio-cultural norms. Venue location, operating hours, and physical security at the venue also serve to limit the use of the venues.

Data Collection

The study team members interviewed 22 individuals who were selected on the basis of their expertise and their position in the ICT and information related sectors. They included 1) officials who could provide an overview of the library scenario, 2) researchers in the field of local government, poverty, and education, 3) high-level officials at the national level who are in charge of other public access venues selected for the study, 4) officials from the Telecommunications Regulatory Commission of Sri Lanka, 5) researchers from the University of Colombo School of Computing, 6) officials at the provincial level of administration, 7) officials in non-governmental agencies, and 8) individuals representing the media.

Eleven focus-group discussions were conducted and involved 133 participants, including venue users and non-users, students, teachers, state officials, including field workers, micro-entrepreneurs, and members of NGOs and community-based organizations. The field survey was based on visits to 39 venues in urban areas and 87 venues in non-urban areas located in 7 of the 9 provinces and in 15 of the 25 districts. The survey team interviewed 1,614 users, 717 from urban areas and 897 from non-urban areas.

OVERALL COUNTRY ASSESSMENT

Public Access to Information

A great many sources are available throughout Sri Lanka from which the public can access information. The people have access to information from numerous newspapers, magazines, journals, books, educational CDs, audio and video cassettes, radio, and television. Independent newspapers, radio, and television exist alongside government-controlled media. While the majority of these various sources are centralized and operate from Colombo, state broadcasting and community radio stations operate in several of the outlying regions.

Regional newspapers are available, and alternative news and media groups are active throughout Sri Lanka. Most newspapers maintain online editions and journalists and reporters turn increasingly to the Internet to access information. SMS news services are available in three languages.

The convergence of technology has fostered citizen journalism, with increasing numbers of blog sites appearing online. Censorship has been imposed at times, but there is a relative freedom of expression. When imposed, suppression of information is often a partisan issue. Online sites have sometimes been blocked and regulatory authorities direct service providers to filter obscene and pornographic sites.

Information generated by research and development institutions, government agencies, and community-based organizations is available to the public, but tends to remain within the institutions instead of disseminated to potential users in appropriate formats.

The major physical venues specifically charged to provide information include libraries, telecenters, specialized information centers, and Internet cafés. The availability of digital information resources and 24-hour call centers has become a welcome new dimension.

Connectivity and access to venues in non-urban areas is problematic. For example, the central hills

present connectivity challenges. Content development and information delivery are constrained by geographical, social, ethnic and language diversity, gender issues, and the barriers that hinder information access in underserved communities.

Access, Capacity, Environment, and the Inequity Environment

Apart from the mountainous region in central Sri Lanka, the geography of the rest of the country presents no real access barriers. The penetration of telecommunications infrastructure has increased rapidly, and as of the end of the second quarter of 2009, had delivered landline availability at a rate of 16.6 per 100 inhabitants, and mobile phone subscriptions at a rate of 62 per 100 inhabitants. Total teledensity stood at 78.6 (TRC, 2009). In spite of these advancements, the pace of infrastructure growth is slow, and telecom penetration is still low (World Bank 2007). However, research suggests that almost everyone at the low end of the income scale, though not necessarily owning a telephone, had access to telecommunication services without having to spend much time or money to reach a phone (de Silva and Zainudeen, 2007; Gunasinghe, et al., 2006). High tariffs and a poor quality of service in the provinces remain barriers to access. Personal computers per 100 people were estimated to stand at 11.4 in 2009 up from 8.2 in 2006/2007 (Department of Census and Statistics, 2009). Internet and email subscribers were at 240,000 at the end of the second quarter in 2009 (TRCSL, 2009), but the percentage of household population using Internet and email in 2009 was 13.1% and 12%, respectively (Department of Census and Statistics, 2009).

The macro data conceal disparities that exist when underserved communities are excluded from having ready access to information. Access in underserved communities is constrained because telecommunications, electricity, and other corresponding essential services are concentrated

in the Western province, especially in the Greater Colombo area, Kandy, and Galle.

Broadband users (at 0.15 per 100 subscribers) are confined to a few major cities. The Western province outstripped the national average and other provinces in the number of households owning computers (Department of Census and Statistics, 2009). Only one person in 20,000 has access to a physical venue (excluding Internet cafés) that can disseminate information. However, 58% of these venues are in four provinces. The most economically dynamic province in the country, Western Province, has 14% of the libraries, Nenasala centers, Vidatha centers, and EasySeva, and also has the greatest number of Internet cafés. In contrast, the most disadvantaged province, Uva, has 7.97% of the venues and has only a few Internet cafés.

Literacy is fundamentally important to the ability of a user to access information. However, information literacy, defined as the ability to determine what information is needed, where to access that information and evaluate it and its sources, and how to use information effectively, is fairly low among the general population (Senewirathne and Gunawardena, 2004). Focus-group discussions and interviews with key stakeholders confirmed these findings.

E-literacy levels in the sample were also low. Data derived from the survey indicate that while almost all the users (97.1%) had the capacity to access the information services provided by libraries, only 77.8% had the requisite skills to use the digital information services provided by the only library in the sample that offered ICT services. Urban/rural skill-level disparities were evident. Specifically, 71.4% of ICT users at rural Nenasala centers, 59.0% of users of specialized information centers in non-urban areas, and 4.4% of users of Internet cafés and EasySeva centers said they lacked sufficient skills, as compared with 27.8% of users of urban Nenasala centers and 3.3% of users of urban Internet cafés and non-urban EasySeva centers. These data are consistent with the responses of operators who said the capacity

of users to access and use information has to be improved through training.

Acknowledging the low levels of computer literacy in the general population, initiatives were put in place to improve skill levels. These included 1) the launching of computer literacy and awareness programs throughout the country by various agencies, 2) the introduction of computer education, 3) creating computer learning centers in schools, 4) the opening of computer resource centers for students in transition between GCE Ordinary Level and Advanced Level, and 5) distance education.

Information Needs of the Underserved Communities

The types of information sought by venue users varied from venue to venue and reflected the availability of content in the venue. More than 58% of the users of all venues looked for information related to education, followed by 49.8% who sought news. Thirty percent of the users were interested in entertainment, 23% searched for information of a personal nature, and 3.5% looked for agricultural information. Information on government services was sought by 19.3%. The demand for health information from these venues was the lowest at 3.3%.

The study indicated that underserved communities most commonly require two types of content: generic information irrespective of individual attributes and circumstances, and specific information that is determined by location, age, gender, livelihood patterns, socio-economic status, and political environment. The former category includes information related to 1) government services at central, sub-national, and local government levels, 2) economic and political conditions, 3) health and nutrition, 4) education and training opportunities, and 5) employment opportunities in the formal sector.

In the latter category is the strategic information that a specific group, community, or individual

requires to overcome disadvantages and achieve upward economic and social mobility. For example, the estate population requires information on citizenship, health, hygiene and nutrition, safe motherhood practices, and literacy improvement. Information that rural people require relates more often to daily living, such as obtaining licenses for stalls at markets and fairs and property uses. They also need information relating to education and opportunities for acquiring marketable technical and vocational skills. They especially need specific information relating to agriculture, finance, and industry, as well as information about business practices, production processes, and labor market opportunities. Women, in particular, require information on rights, legal provisions, and services. People affected by conflict need information about security, resettlement and relocation, entitlements, redress from abuses, and conflict resolution.

Much of the information required by community groups is available from formal and informal channels, but that information often is fragmented. In addition to public access information venues, government and non-governmental agencies, financial institutions, private sector and commercial entities provide information either on demand or proactively. Information is available from numerous channels and in ever increasing quantities, but the quality of that information is sometimes questionable. This environment exacerbates the lack of information literacy among communities, and requires special efforts from information providers to disseminate information in formats that are preferred by people, and which is useful to them.

Economic, Policy, and Regulatory Environment

Despite the vulnerability of the Sri Lankan economy to external shocks, internal violence, and security responses, the national economy was able to sustain a growth rate of 6% or more

over several years prior to the global economic turmoil of 2008. For example, 6.8% in 2007 is typical of the pre-2008 levels. In 2009, a growth rate of 3.5% was achieved amidst challenging domestic and external conditions. The end of the thirty-year armed conflict in mid 2009 however provides greater optimism for long-term sustainable growth. The prospective policies in the ten-year plan are designed to maintain a comparable trend, realize faster growth, and move towards a knowledge-based economy. A striking feature of the economy is its changing sector composition with the dominance of the services sector and the declining contribution of agriculture to the GDP. The telecommunications sub-sector has led to growth in the services sector and is expected to maintain the growth momentum to become a lead sector in future growth. However, the importance of the agricultural sector has not diminished and still provides employment to about a third of the workforce.

The emphasis placed on education and the corresponding increase in literacy levels has contributed to the growth and increasing popularity of libraries, even though there is no explicit policy covering library development in the country. In contrast, the expansion of digital ICTs is progressing through a holistic program initiated in 2004. Having recognized the necessity of using ICT to leverage development, successive government administrations have instituted policy reforms to encourage private and foreign investment in the ICT sector and to enhance infrastructure facilities.

An institutional framework was established through an Act of Parliament to implement a program aimed at diffusing and using ICTs. The government has obtained foreign financing commitments from multilateral and bilateral donors for IT, science, and technology amounting to US\$17.3 million in loans and grants. Among the initiatives that began with external assistance are the eSri Lanka project, funded by the World Bank, and the Secondary Education Modernization Project, funded by the Asian Development Bank, that

aims to improve secondary education from grade 10 through 13, by assisting in the development of IT education and computer laboratory facilities. The level of political backing in Sri Lanka for disseminating ICT is high, and Dutta and Mia (2010) ranked the government's prioritization of the ICT sector at 5.2 on a scale of 1 to 7.

Reforms are in place to establish a suitable legal framework to protect ICT development, and domestic laws were enacted in keeping with international conventions and treaties, such as laws passed to safeguard intellectual property, protect computer software under the copyright regime, and to introduce provisions on "fair use." Laws are also in effect to govern electronic transactions and criminalize attempts at unauthorized access to a computer, computer programs, and data or information. A regime for investigating offences is in effect. Work is continuing to ensure data protection and to promote institutional development for data protection and privacy concerns.

Collaboration Practices Across Venues and Future Opportunities

A lack of collaboration among venues was found to be one of the major weaknesses throughout the venue network. The strong formal networks that exist among university and special libraries do not exist among public libraries. However, many public libraries do maintain links, especially with government agencies, to meet the information needs of their clientele. Other venues, such as Nenasala and Vidatha centers, work within their specific groups, and Nenasala has joined telecentre.org. Still, collaboration between and among different types of venues is extremely limited. And, most disconcerting, was the degree to which venue operators were unaware of the other venues existing in their own localities, how collaboration could augment resources, and the disinterest in working together to meet the information needs of

the communities they serve. Furthermore, insular attitudes prevent such collaboration.

Buzz Factors

The Sri Lankan government's focus has aimed at developing telecenters, but individuals and groups of users have followed their own needs and are seen increasingly at private venues. Wi-fi hot spots and kiosks have been introduced at fast food outlets, shopping malls, and in hotel lobbies. Unfortunately, these facilities are located almost exclusively in Colombo, except in a few major towns and areas that tourists frequent. It was clear that many young people regard attending computer training classes as "cool."

Legitimate Use: Who Decides What Constitutes Legitimate Use of Information/Resources

The study revealed that, except for public libraries, commercial venues attracted more users than publicly funded venues established to aid underserved groups. In both urban and rural commercial venues, more users engaged in social networking than those who looked for information regarding business or commerce. Information of a personal nature and entertainment was in demand in both urban and non-urban venues. The publicly funded venues either did not allow, or else discouraged, users from playing games or using chat services, although a few Internet cafés had actually made special provisions for users to do so. The various available services are driven by supply and demand, and it appeared that the commercial venues, with their entrepreneurial spirit, were willing to take risks to make the underserved more technologically knowledgeable than did the ICT4D venues. The increase in the numbers of mobile phone users points directly to the social role of technology.

Shifting Media Landscape

Cellular telephone ownership and use is exceptionally widespread. People across all social and economic strata own cellular phones. The cellular telephone industry's tactical position is that regulators should explore all options to make ownership and use of mobile phones more affordable. Although mobile phones are most often used for communication, text messaging, accessing news, and enlisting aid in emergency situations, the comfort levels of using a mobile phone not only appears to be high, but bodes well for increasing e-literacy in the population. In contrast, business and income generation were low on the user list of preferences (Moonesinghe et al., 2006). However, there are examples, such as that of the *Govi Gnana Kendra*, in which the use of mobile telephony enabled the agricultural markets to function more efficiently to the benefit of farmers and consumers.

Satellite and cable television penetration is particularly low, but a perception exists that the entry of mobile operators into satellite television will change the landscape, especially if the government loosens the regulatory constraints regarding high import duties and the difficulties of obtaining an operating license from the state-owned television broadcasting corporation. During the time the study was underway, one mobile television service on 3G wireless band was already operating and was launched by a service provider who immediately sought to introduce an IPTV (Internet-based TV) service.

The use of Web 2.0 features in Sri Lanka is very limited. Web 2.0 tools, for the most part, have been used to establish citizen journalism initiatives. The most notable instances have been Groundviews <www.groundview.org> and its Sinhala and Tamil blog site, and Vikalpa <www.vikalpa.org>. The latter also launched a citizen journalism YouTube channel. A limited number of sites that promote local language blogging also

are available. Social networking sites, too, have emerged. Another initiative, the Voices of Reconciliation Internet Radio website, was designed for radio productions by civil society for civil society.

VENUE ASSESSMENT

In view of the government's attempts to bring about change, this study was designed to focus on the ability of the public to access information venues and to evaluate how those venues meet the information needs of underserved communities across the overall economic, political, and regulatory framework. The study team reviewed how the venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

The overall legal and regulatory environment surrounding public access to information venues is favorable. Foreign investment in the telecommunications sector has increased, and while that has aided the development of infrastructure, it has also made significant material contributions to the growth of landline and mobile services, although penetration remains relatively low. Notably, the increasing number of mobile users could become the basis for the greater adoption of ICTs.

Existing and anticipated systemic problems could be alleviated to some degree by 1) adopting UNICODE fonts, 2) introducing a web-page translation tool, such as a Firefox plug-in in Sinhala and Tamil, and 3) adding a Google search interface that allows searches of local language websites in UNICODE. These developments would allow users who are not proficient in English to access information. A few FOSS and UNICODE communities already exist.

PUBLIC LIBRARIES

Public libraries in Sri Lanka have a long and highly regarded history dating back a hundred years. At present, the country's public libraries are administered through sub-national, regional, and local government agencies that are responsible for the more than one thousand main libraries scattered across all parts of the country. The National Library and Documentation Services Board has a mandate to develop libraries, while two of the nine sub-national level governments have established Provincial Library Services Boards for district and provincial library development.

Public libraries exist as an extensive network of main, branch, and mobile libraries and "out-posts." While all the libraries provide lending and reference services, some also provide information services. However, the majority are still entrenched in providing traditional services and are not sufficiently information oriented, as well as being slow to adjust to emerging economic and social needs of communities, concentrating as they do on a particular segment of the population. They have not been able to keep pace with the rapid developments in technology. Although several libraries have automated housekeeping functions, information retrieval was done manually. Very few, if any, of these libraries provided the public access to information using new ICTs. The staff members are deeply conscious of the need to use ICTs because of the user demand for ICT-based services and training.

Many libraries operate under less than optimal conditions, and fundamental problems must be addressed if the libraries are to deliver a higher level of service. The administrative dichotomy and political patronage adversely affect staffing and recruitment of skilled librarians. The result is seen in minimal or sub-standard services. For example, many libraries do not even have a catalogue.

Less than 1% of the country's population uses public libraries, but wide variations in usage were evident. For example, in the Central Province,²

about a third of the total provincial population are registered members, or are casual users of the 178 libraries in the province. But in the more developed Kandy district, about 60% of the population are users, while in the Matale district that figure drops to about 10%. In the hilly Nuwara Eliya district, which has a concentration of estate workers, users represent just 4% of the district's population. Still, as seen by the number of users who come to the public libraries, the libraries remain the most popular venue when compared with technologically equipped venues that have been established.

Public libraries are the most widely used venues available to the public. The strength of the public libraries lies in 1) their acceptance by the community, 2) their extensive network that strives to reach as many of the marginalized population groups as possible, 3) the services they render in support of education and learning, 4) the space they provide for all people to use their services without discrimination, and 5) their integration with local social and cultural activities.

Among all the venues studied, public libraries still attract the largest number of users of all ages, educational background, and socio-economic status. Most of the libraries have professional and skilled librarians and para-professionals. The National Library and Documentation Services Board, acting under its mandate for library development, and the Sri Lanka Library Association collaborate to enhance the professionalism among librarians. Many libraries have started to automate their internal operational functions.

The major weaknesses noted within the library system originate in large part with the traditional framework in which the libraries continue to function, and the slow progression towards providing the information services required to meet the community and user needs. Sri Lanka has no national law directing the operation of public libraries, and only two of the nine sub-national governments have passed statutes relating to library services.

Because libraries are only a permissive function for local governments, library development is seldom supported on any sustainable basis because the local governments do not allocate regular financial resources. An administrative dichotomy has resulted in staff shortages, reliance on non-professionals, and poor service conditions that are the product, in turn, of low motivation and lethargy among the staff members.

Nearly a decade after new ICTs were introduced into the country, the public libraries have not been able to make any particular progress to provide digital technology-based services for the users.

An institutional framework is already established in public libraries, and the libraries have a solid user base. Consequently, a real opportunity exists for these venues to be reorganized to provide enhanced and efficient services if ICTs were provided. With the experience that librarians have in managing information, and given the confidence the public shows in the library system, libraries could quickly embrace the new digital environment.

Access, Capacity, Environment

The public library services remain open to all population groups, regardless of age, gender, educational level, or income. More than any other type of public access information venue, the libraries reach out to underserved communities, but external factors, such as security concerns, and internal factors, such as insufficient and outdated content, limit user value. Additionally, user-centered factors, such as lack of awareness, interest, and time constraints also reduce the value to the users seeking access. Non-urban users are particularly disadvantaged because rural branch libraries function most often as reading rooms operated by untrained staff members who have little capacity to meet the information needs of underserved communities. The emphasis placed on education and skill development, and the

inadequate number of school libraries, provides an opportunity for libraries to meet the needs of the public.

Revenue Streams for Publicly Funded Venues

Financial allocations are made to the libraries only to purchase publications and to support closely related activities. All other expenses incurred in operating and maintaining a library are borne by the local government entity. The local government derives its revenue from the allocations made by the Provincial Council, which in turn is dependent on grants and transfers from the central government for capital and recurrent expenditures, in addition to monies collected from taxes, duties, license fees, and other fees, such as court fines and land development fees. But there are limitations on the self-generation of resources by sub-national and local governments, and this constraint, along with poor financial management, creates adverse impacts on service provisions, including library services (Bandara, 2004). Therefore, the development of public libraries will, depend, to a great extent, on the ability of provincial and local governments to raise revenue, to overcome administrative problems, and to kindle the interest of the political establishment of the local government. It will also depend on the ability of the library committee and the librarian to engage in advocacy, exert pressure, and influence the provincial and local administrations.

NENASALA CENTERS

Nenasala centers were established as public information access venues to provide affordable access to underserved communities. These centers are a functional element of the national e-Sri Lanka program launched in 2004. When the centers were initially being established, the majority

of them were housed in temples, churches, and mosques. Those sites were selected because of the close relationship the community had with these institutions and because they served as a low-cost operational option. Subsequently, additional Nenasala centers were distributed among entrepreneurs, community organizations, and a few public libraries. The majority of these venues are in rural areas.

The Nenasala centers, which are still in the early stages of implementation, were expected to support locally provided social and community development services enabled through the e-society program of the apex agency, and through online government services. The operators tended to concentrate on providing digital literacy to young people from underserved communities. Some of the projects funded by the e-society program could serve to encourage community participation and appropriation of technology in several ways, including a learning management system for secondary schools, a “text-2-Braille” system, a Wikipedia translation, and a remote health service provision, among others.

The few champions that emerged among the centers provided innovative services and reached the community, but the centers face many constraints. The sources of revenue available to the centers are shrinking for several reasons. The most important them are: 1) the increasing adoption of mobile telephony and competition amidst escalating utility costs, 2) deficiencies in basic infrastructure, such as frequent power outages, slow connectivity, malfunctioning equipment, and poor technical support, and 3) a loss of users. The operators lacked the necessary experience in community mobilization, although it was noted that community mobilization seldom happens quickly, and most operators had to concentrate on providing computer training to maintain their financial condition.

Access, Capacity, and Environment

Nenasala centers are required to be established in small rural communities with populations ranging from 2,000 to 5,000. More than 85% of the venues are located in rural areas, with some in lagging provinces, such as Uva, Sabaragamuwa, and Nuwara Eliya, making them available to disadvantaged communities. The centers reach people who have had little or no experience in using formal, organized venues to access information, or lack the capacity to access digital sources of information, and even serve people whose information literacy levels are low.

The users themselves recognized their lack of competence, and those operators who were interviewed pointed to the need to train people on how to use ICTs. The Nenasala centers operate in a supportive environment. The computerization of government processes and government offices in the area is widely expected to attract more users to the venue.

Revenue Streams

It was recognized at the outset that the revenue-earning capacity of the venues would be limited because of the low population densities combined with the lessened ability and willingness of the people to pay for services. To offset this issue, the Nenasala center program provides initial subsidy during the first four years. Income is derived primarily from training and communication services. Residual businesses were started by some operators to supplement their incomes.

SPECIALIZED INFORMATION CENTERS

Vidatha Resource Centers and Rural Agricultural Knowledge Centers are available in a majority of districts of the country and serve a broad segment of the population. These centers were established

to provide information to defined communities to improve their livelihoods. The Vidatha Resource Centers are the responsibility of the Ministry of Science and Technology and are intended to introduce and disseminate information on appropriate, low-cost technology to micro and small-scale entrepreneurs. The Rural Agricultural Knowledge Centers are an extension activity of the Department of Agriculture and focus exclusively on the farming community.

These venues recognize that the majority of the public has little computer literacy at best and will not come to a venue with any regularity. Therefore, relevant information has to be delivered to the community through a network of intermediaries. The Vidatha Resource Centers adopt the strategy of reaching those people through community mobilization and by establishing Vidatha Societies at the *Grama Niladhari* (lowest level of administration) division. At that point, technical and field officers deliver the information directly to the community and to the users. Any associated training is also presented at the community level. This program is succeeding and has the backing at the national level of the Institute of Industrial Technology, the Arthur C. Clarke Center for Modern Technologies, and the National Engineering Research and Development Center.

The Rural Agricultural Knowledge Center program is the cyber-extension means of distributing information to farmers and provides the information through scheduled visits, mass media, video programs, posters and printed materials, field demonstrations, and field clinics. The centers were implemented following the discontinuation of the agricultural extension service that had previously provided intermediary services to farmers. The centers use electronic media to disseminate information to farmers and to the network of extension workers who act as intermediaries to aid farmers. The availability of research-based content in local languages is a critically important advantage provided through these centers.

Access, Capacity, and Environment

While the venue services are readily available to all population groups, they are aimed especially at the rural population. The venues included in this study exhibited no age, gender, or class discrimination when users sought access, although a long-standing bias towards male farmers remains in evidence. The use of the services in the Vidatha centers by women is particularly high.

The main Vidatha centers provide digital ICT services, with only a few of the village level locations having ICTs, and the majority of their users still do not have access to digital ICTs, primarily because of the lack of infrastructure.

The Rural Agricultural Knowledge Centers are equipped with the necessary hardware and connectivity. Most have trained personnel. Access to ICTs is only available from the center, but an available hotline linked to the research center enables farmers located anywhere in the country to obtain an immediate response to their queries.

Although typically poor, sometimes illiterate, and most often not exposed to technical education and formal skill-development programs, micro and small-scale entrepreneurs are engaged in productive activities and, therefore, have a degree of homegrown skill and understanding that helps them absorb new information provided to them, especially because the information dissemination methods used are effective. The content is specific and relevant to each group. The entrepreneurs and farmers have become accustomed to consulting the centers to obtain information relating to their livelihood.

The overall environment throughout Sri Lanka supports the development and expansion of these and other similar types of venues. This support flows from the national policy, which emphasizes the use of local resources and low-cost technology for livelihood development, and recognizes the importance of agriculture in the national economy as the main source of income for the rural population. Additionally, a government sponsored “Grow

More Food” campaign has motivated non-farmers to access these venues for information on crops and cultivation practices.

Revenue Streams

The responsibility for both of these programs rests with the central government. The National Treasury provides a budgetary allocation to the Ministry of Science and Technology for the Vidatha program. The Rural Agricultural Knowledge Centers are funded by international donors, including CARP and the Rice Granary Area Program (GAP) associated with the International Rice Research Institute. The National Treasury meets the recurrent expenditure through the Agricultural Extension and Training section of the Department of Agriculture.

INTERNET CAFÉS AND EASYSEVA

Internet cafés are present in all the major cities and in some rural areas. An EasySeva is a combination of an Internet café and a telecenter and aims to reduce barriers to information access by working through a market-driven approach to create community information centers and to develop entrepreneurs in the ICT sector. They act as a last-mile initiative and use 3G HSDPA as it focuses on applications and concentrates on making health and financial products available. The concept was introduced in 2007, and 39 centers were in place by mid-2008. The plan is to apply the EasySeva model throughout the country. Financed by USAID and implemented by a US-based firm, the Synergy Strategies Group is in partnership with Sri Lankan private sector companies. The EasySeva is a part of a franchise.

Access, Capacity, and Environment

Because Internet cafés are located primarily in urban and semi-urban areas, the opportunity for underserved communities to access them is limited. But because EasySeva centers have been established in small townships outside the Colombo district, they provide access to rural users. EasySeva centers exhibit no age, gender, or class discrimination towards users who seek access. Still, Internet cafés are more accessible to citizens in urban areas, although they are seldom readily accessible to people with disabilities or impairments. Children under 14 years of age can use the venue only under supervision. Men use the centers far more often than women.

Given that the majority of the Internet cafés are located in urban areas, there is evidence that those who visit these urban venues may possibly have a somewhat greater degree of skill in the technology than the people in rural areas. The users of EasySeva located in semi-urban areas were also found to be able to use some of the facilities.

Comparative View Among All Important Venues in the Country

The publicly funded information venues included in this study have the three-fold goal of improving public access to information and ICTs, reaching un-served and underserved communities, and leveraging ICT for socio-economic development. The EasySeva centers, while offering broadband and content services to non-urban communities, have the goal of developing and piloting a “bankable” business franchise model for establishing centers across rural Sri Lanka. Internet cafés are commercially driven, single-outlet operations that provide communication and Internet services.

All venue types, except the Internet cafés, operate within a structure that provides them financial, technical, and other support. Public libraries operate through local government entities,

but without a clear demarcation in their lines of support. The libraries are dependent on the local government for finance, on the provincial council for staffing and other logistical support, and on the National Library and Documentation Services Board and the Sri Lanka Library Association for professional inputs.

Nenasala centers operate within a three-tier structure: 1) the owner/operator, 2) Regional Impact Teams, who provide technical support to a district's cluster of Nenasala centers, and 3) the Information and Communication Technology Agency at the apex, which is responsible for policy, implementation, overall supervision, content development, and other support.

The Vidatha Resource Centers are under the direct supervision of the Ministry of Science and Technology and are supported by research and development agencies affiliated with the Ministry. The Rural Agricultural Resource Centers are managed by the Department of Agriculture, which provides all the necessary resources. The EasySeva project is supported through a public-private alliance that provides connectivity, technical and infrastructure support, working capital, equipment leasing, training, and content.

Financial sustainability is relevant to the Nenasala centers, EasySeva, and Internet cafés while the other venues receive public funds. The former venues are subsidized but operational. Financial sustainability became an issue when several centers suspended their services because of escalating costs, increased competition, and insufficient use. Some of the other more enterprising operators who had additional resources were able to develop innovative services and tap into other financial resources to sustain their operations. The EasySeva and Internet cafés that were reviewed for this study had built thriving businesses that raised questions regarding the ability and willingness of users to pay for services.

The study team determined that male users exceeded female users in all venues except the Vidatha Resources Centers. It was also determined

that the majority of users across all venues were between 15 and 35 years old. Most users (34.2%) went to a venue regularly, 27% went frequently, 16.9% went daily, and 13.7% went occasionally, with the highest percentage of daily users visiting public libraries. Almost all of the users had a few years of schooling, which indicated that only the literate accessed the venues. High-income earners and the financially elite rarely used these venues, and of all venues, more low-income earners went to Vidatha centers, as was to be expected because they are the main beneficiaries of those centers.

Evidence from the field once again reinforces the concept that participation by the main stakeholders in a project is a key to its success. Users of the venues are characterized as heterogeneous with diverse interests and needs, and their involvement in the venue is critical if appropriate information services are to be provided. The public libraries have attempted to involve the communities through library committees and the formation of user groups. The specialized information centers, too, had identified the information needs of their clientele. The Nenasala centers developed ways to raise user awareness, and while they had met the training needs of young users and had contributed to increasing digital literacy, they did not have a mechanism to involve the community in their activities.

The majority of venue users tend to use one type of venue to the exclusion of others, but students were the exception and used facilities available in their own institutions. The satisfaction level of many users was low because of the lack of adequate content and services, the lack of applications that would best serve their purposes, the poor facilities, and disruptive operational factors.

SUCCESS FACTORS AND RECOMMENDATIONS

Summary of Lessons in the Country Regarding Public Access to Information and Communication Venues with Reference to Access to ICTs

Skilled and knowledgeable leadership is critical to the success or failure of the venues in achieving the primary objectives of meeting the information needs of the communities they serve. Operators who had superior leadership qualities overcame resource constraints to a great extent and their innovations drew people to the venue to use the services. To meet the information needs of the people, the savvy operators clearly saw that they could attain success by noting and applying a range of innovations. They had empathy towards users, adopted a participatory approach to the development of the venue, and established mechanisms to get feedback from the community. They also learned to forge links and cooperate with the agencies that generate information.

The results of the study established that digital ICTs could greatly assist the creation and support of networks within localities, communities, and across livelihood activities. Issue-based networks were also found to be of critical importance.

Despite the emphasis placed on the use of information for socio-economic development, the highest demand by users of the venues covered by the study was for information on current events, followed by information required for educational purposes and entertainment.

A vast amount of source materials was not readily available at the venues and drove people to expend disproportionate amounts of resources to obtain the information they believed they needed. These materials commonly included 1) survival or “functional” information that could serve to improve an individual’s livelihood, and 2) ad-

ministrative and legal provisions that have to be complied within the course of daily living. Often, there was very little location-specific information available that could be used to improve the local economy or improve the income of individuals.

In addition to public access to information venues, many people tend to rely on government institutions, non-government agencies, and private segments as formal sources for information. A second source on which the people rely are individuals acting in an official capacity as both service and information providers. These commonly include the Grama Sevaka, Family Health Workers, Agricultural Instructors, Samurdhi Officers, and informal contacts, such as the monk of the village temple and the village elite who are seen to be authoritative sources of critical information. Digitizing the content that these service providers can deliver would greatly benefit the citizens. Government call centers, and the increasing number of government agencies that have a web presence, when combined with the content generated in local languages, provide an excellent opportunity for communities to access information.

Physical access emerged as one of the critical factors in determining the ease with which the public can access information venues. The location of public libraries was found to be somewhat better than most other venues, especially in the underserved areas, but the physical locations of several rural libraries severely hindered access. Correspondingly, the locations of the government-sponsored Nenasala centers had been established without adequate attention paid to the ease of access for older persons, for the disabled and impaired, and, in some instances, by women. The local terrain, too, sometimes posed challenges to access.

Often, the information literacy levels of users and non-users in underserved areas were low. The capacity of those individuals to look for information, especially in ICT venues, was quite limited.

Although most of the users of commercially run venues had the ability to use the venue, the capacity of other users to access ICT services proved to be a constraint.

Among the most significant weaknesses governing the abilities of the local public to access information was the lack of awareness, linkages, and coordination between and among the various information providers. In this context, ICTs can play a significant role by linking information providers through an efficient electronic network. Additionally, mobile applications could be developed to serve underserved communities.

Success Factors and Recommendations for Promoting Public Access to ICTs

The legal and regulatory environment in Sri Lanka governing ICT-enabled public access to information venues is favorable. Foreign investment in the telecommunications sector has increased, aiding the development of infrastructure, and contributing to the growth of landline and mobile services, although penetration on the broadest scale is still comparatively low. Notably, the increasing number of mobile users could serve as a basis for the greater adoption of ICTs.

Systemic problems could be partially alleviated by 1) adopting UNICODE fonts, 2) introducing a web-page translation tool, such as a Firefox plug-in in Sinhala and Tamil, and 3) adding a Google search interface that allows searches of local-language websites in UNICODE. These developments would allow users who are not proficient in English to access information. A few FOSS and UNICODE communities already exist.

Most importantly, from the standpoint of success factors, an extensive network of publicly available information and ICT venues exists in the country and holds the potential to reach a larger number of users.

Recommendations

The public library system needs to be revitalized by 1) making the provision of public libraries mandatory and ensuring regular financial allocations, 2) establishing Provincial Library Services Boards where they have not been established, and 3) recruiting professional librarians and upgrading service conditions. Automation of libraries should be made a priority, along with training the staff in the necessary required skills.

The results of the study clearly show that there are enormous efficiency gains that can be realized if the information that is now scattered and largely disorganized is uniformly organized and focused on the user, while adopting strategic measures to overcome barriers to access. Much added value can be rapidly realized by investing in the capacity development of the information providers, enhancing the information literacy of communities, enabling them to identify the most appropriate source for the information they require, and accelerating the present government program to provide e-government services.

Collaboration and resource sharing within the government and private sectors is imperative, especially when considering the numerous existing resource constraints. A striking feature of the existing limited public access to information venues is the lack of collaboration among similar types of venues and across venues. Operators complained of a lack of resources. Except for one or two instances, none of the operators of the venues studied were even aware of other public access information venues in their respective localities and had made no attempt to collaborate to meet community information needs. These venues operated as “stand-alone” sites.

Content development initiatives should be based on carefully designed needs assessments to capture the critical location-specific information needs. The involvement of the community to the greatest possible extent would give ownership

to the project and prevent it from being a far less effective top-down exercise.

Based on the results of this study, it appears that no in-depth venue evaluations have been undertaken at any of the public access information venues. Such evaluations should be conducted in the full context of the administrative framework within which the venues operate and meet the information needs of the community. To be of any real value, it is imperative that the statistics developed in the evaluation process be carefully maintained and analyzed by technically knowledgeable and highly skilled individuals and placed in the public domain.

CONCLUSION

This study established a broad overview of the public's ability to access to information via existing venues and explored how those venues meet the information needs of underserved communities within Sri Lanka's overall economic, social, political, policy, and regulatory framework. The results obtained define how the venues function, how they serve the needs of users, the constraints under which they operate, and the successes they have achieved.

The public access to information venues in Sri Lanka has expanded through the introduction of digital ICTs and the establishment of new venues and channels through which the public can access information. There is considerable political support for using ICTs, as seen in the major program implemented by the national government. As far back as 2004, Sri Lanka initiated its national program to expand digital technology through institutional reforms, regulatory changes, infrastructure development, and streamlined government processes. The legal reform process to keep pace with technology developments, especially with regards to intellectual property rights, computer crimes, and e-commerce, is well underway,

but regressive policy decisions sometimes have had a tendency to reverse positive developments.

Censorship has been imposed whenever national security was considered compromised, but the country maintains a relative freedom of expression. Also, there is freedom of online expression, but censorship has been imposed on sites that were deemed to present partisan views. Online sites have been blocked on occasion and the regulatory authority has directed service providers to filter obscene and pornographic sites.

The business environment for investment in the sector has improved, but is still considered to be cumbersome, and further innovative and progressive policies are required to meet the needs of grassroots communities. Telephone penetration, especially mobile telephony, has increased, but broadband access is confined to major urban areas. A few hot spots are available. Affordability tenaciously remains an issue, but increased competition is driving tariffs lower, although the recent four-fold increase of a levy on mobile and wireless telephone usage is a decision that further burdens the low-income masses. Household ownership of personal computers is confined mostly to people in the Western Province, and low-cost computers are being widely promoted as an effective means to extend information access, as is the "One Laptop per Child" project. In general, literacy levels are relatively high, gender disparities are low, and school enrolments and retention rates are equally comparable, but the digital literacy throughout the general population is considered to be below an acceptable level.

Public libraries rarely provide ICT-based services. Library usage is high, while ICT-enabled venues have not been extensively integrated into the communities in which they operate. Despite the wide geographical distribution of information venues, and the availability of other corresponding facilities, less than a tenth of the population makes use of their services. Low-usage rates are associated with a lack of competency, insufficient content and services, and a general lack of

awareness, either of the availability of venues or the services provided by them. Locally relevant content is being developed, albeit at a slow pace, and although government websites contain useful information, no practical transactional online services are available. The venues function as stand-alone entities because librarians and venue operators did not attempt content or service enhancement through resource sharing or any other form of collaboration.

Public libraries operate under considerable financial and other resource constraints while the Nenasala centers were also found to be confronting stiff competition and users' preference for non-digital sources of information. Sustainability is a major concern for when the subsidy is phased out. The venues functioning directly under the government institutions were not unduly concerned about finances because the money for recurrent and capital expenditures is apportioned from the national budget. These same nationally subsidized venues also have the opportunity to mobilize a variety of internal and external resources. The Internet cafés appear to be financially stable, while the EasySeva used a new business model, the sustainability of which has not yet been assessed.

In the absence of a right-to-information law, it appears that officials act on the basis of the Official Secrecy Act and the Establishments Code, that limit the dissemination of information and determine what information is made available to the public. Consequently, it was a particularly difficult task to obtain the information required to conduct this study. It was, therefore, necessary to gain permission from high-levels of authority to interview the operators of most of the venues. Similarly, focus-group discussions with operators of publicly funded venues had to be routed through various officials. Needless to say, access to financial statements was not granted. Only two of the venues studied maintained statistical data pertaining to content and users, and none of the venues studied had information that would characterize their clientele or indicate how the

services were used. Furthermore, recall by operators was limited.

Regardless of the many constraints, the librarians and operators were extremely helpful and quite willing to cooperate. In fact, many said that this study was one of the rare instances when their views had been sought, and it helped to relieve some of their frustration. The key stakeholders with whom discussions were held were also forthright in the comments they made, although some officials were defensive. The research team was pleased to acknowledge the information given by over 200 officials, operators and focus group participants from all parts of the country, as well as the many users who participated in the survey.

Overall, the research findings are believed to be particularly important within the context of the very limited present knowledge base on information needs among Sri Lanka's underserved communities and the functioning of public access to information venues.

The implementation of the research study in two phases, with the first three months devoted to identifying the terrain and the second making an in depth study, proved to be an extremely useful project structure. For example, some of the conclusions made in the first phase proved to be erroneous when the survey data were analyzed.

It is anticipated that the findings of this study would aid in developing future policy, help individual venues to make course corrections, and will also help develop strategic decisions to improve the ability of the general population to access information using ICTs. It is further believed that resources can be developed to make the public library services ICT-based and more attuned to the needs of underserved communities in a manner that will encourage the political establishment to perceive library services to be an essential public service.

Recommendations for Further Studies

It is recommended that indicators be developed to assess the progress in Sri Lanka towards universal access. These indicators should go beyond infrastructure and connectivity to consider information access inequalities in a way that targeted solutions can be achieved. The needs and demands of the users should be considered particularly important. Both quantitative and qualitative approaches should be adopted.

Research studies on the information needs and information-seeking behavior of underserved communities need to be undertaken. This requirement is especially important as information venues are established and continue to operate without fully understanding the socio-economic and cultural milieu of underserved communities.

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ENDNOTES

- ¹ These data are for 18 districts only and exclude the seven districts in the North and East where the main language spoken is Tamil.
- ² Usage statistics were available only from this province

Chapter 30

Public Access ICT in South Africa

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EXECUTIVE SUMMARY

Introduction

South Africa has long enjoyed a level of national wealth that evolved largely through the development of its enormous natural resources. That financial foundation has been well supported by an aggressive agricultural base and the ongoing emergence of South Africa as a prominent industrial nation in Africa. A valuable outgrowth of this combination has been South Africa's particularly robust and well-developed media and information sector, which is protected by strong constitutional provisions. Although the overall national economic position is secure and growing steadily, striking contrasts linger within the social sector.

Eighty percent of the people are Black Africans, and the legacy of apartheid remains in evidence. Since the demise of apartheid and the installation of a democracy in 1994, the government has worked to address the inequities. This effort is apparent across a range of interest areas: from building an infrastructure for schools, clinics, roads, and electrification projects in rural and underserved areas, to the drive towards broad-based black economic empowerment initiatives designed to create wealth among the previously disadvantaged.

As a key response to the inequities, South Africa is working diligently to expand and improve access to information and ICTs. Despite significant successes in economic growth, inflation control, fiscal control, and revenue collection, other sectors have been slow to meet certain stated national

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objectives. This slowness is particularly evident in the national power crisis, the delays in improving the education system, and the approach to the HIV/AIDS pandemic.

Methodology

Two international workshops were conducted under the leadership of the Technology & Social Change Group at the University of Washington, where the international research teams explored the approaches and findings from each of the 25 countries participating in the study. The research study was designed to provide an overview of public information and ICT access points.

This South African segment of the overall study was initiated in early 2008 and consisted of two phases. Phase I combined research into existing information, interviews with key decision makers and experts, and visits to readily accessible venues. Phase II was a field survey undertaken during June and July 2008, during which the research team examined ten public libraries, seven telecenters, and seven HIV/AIDS support centers. These particular venues were selected for their accessibility and to ensure that they reflected, as far as possible, variations in location (urban and non-urban), user types, and the services offered at each. In total, 799 user survey questionnaires were completed and analyzed with regard to information uses and needs.

Findings

The recent attempts by the South African government to improve access to information and communication technologies (ICTs) have not yet had time to have a significant impact on the public. Additionally, publicly funded initiatives have been slow to develop and often lacked effective coordination. Efforts to encourage a much more competitive telecommunications sector have not yet produced any substantial improvements in basic telecommunication infrastructure. While

recent policy changes by government to increase competition in the sector are expected to result in lower Internet access prices in the future, access costs are currently still relatively high, and access is generally unavailable beyond the major urban areas. While mobile phones are in use by over 70% of the population, the costs to the users have not dropped by any significant amount despite the presence of three service providers.

The Universal Service and Access Agency of South Africa (USAASA) has not met its announced goal to establish additional telecenters, especially in rural areas. New strategies have been established in the USAASA in which its future role will focus more on policy than on implementation.

Due to the policy changes referred to above, 2.5G, 3G wireless bands, and fixed wireless services are becoming increasingly available in more of the outlying areas that previously had no access to broadband. New international submarine fiber optic cables have also come online and are expected to help to reduce the high cost of Internet access. Still, the most notable ICT-access impact has come from the thousands of "phone shops" opened and operated by private entrepreneurs that make use of the mobile GSM providers' networks. However, the phone shops have resulted in a generally unforeseen domino effect among other service providers.

The entrepreneurial public phone shops take advantage of subsidized voice call rates (about 60% cheaper) from the mobile operators who are required to provide discounted tariffs as part of their license obligations. Ironically, this subsidy led to the demise of the fixed-line phone shops, which offered local calls about 50% cheaper than the mobile phone shops, which had a much lower national rate. Subsequently, this development had the effect of significantly reducing the number of operating cybercafés. The cybercafés were most often started as fixed-line phone shops that could more easily obtain a DSL broadband connection. (The mobile-operator-supported phone shops have

generally not provided Internet access, although a few have now begun to do this using 2.5 or 3G.)

The 2007 - 2008 strategy and budget of the National Department of Communications (DOC) prioritized access to educational and health institutions, the postal service, government offices, and “Thusong Centers” (one-stop-shops for government information) in the roll out of communications networks and services designed to provide wireless broadband communication service.

The lack of coordination among the government’s various policy agendas has caused a haphazard support for ICT access. Although the government has made some improvements, and while ICT access previously has not been considered an essential, there is increasing recognition that universal service objectives must extend beyond the provision of telephony.

Success Factors

The study identified the following success factors:

- Reduce the cost of Internet access
- Increase broadband infrastructure in underserved and rural areas
- Strengthen focus on delivering service to the public
- Increase public awareness and improve education regarding the role of ICTs
- Leverage capacity for existing and sustainable ICT pilot projects and roll out
- Increase the number of access points provided by the private sector
- Increase collaboration among various government departments 1) to create more public ICT access points in underserved and rural areas, 2) to provide mass ICT literacy training to users and staff of venues providing ICT access, and 3) to make more content and applications available on line.

Recommendations

The following specific recommendations emerged from this study:

- Accelerate the deregulation of the telecommunication sector to encourage competition and thereby reduce connectivity costs and increase accessibility to the Internet. This approach would include three key elements: 1) Permit the ISM bands (license-free) in the wireless spectrum to be used for shared use, and mesh wi-fi use across land boundaries, 2) permit those bands to interconnect with the public networks, and 3) ensure a level playing field for large and small operators in interconnection agreements.
- Vastly increase and improve the availability, reliability, and use of inexpensive electric power both in rural and urban areas by providing stronger and practical support for alternative energy systems. This initiative should include subsidies or soft loans for installing renewable energy and independent power-producer (IPP) policies to allow anyone to sell excess renewable power back into the power grid.
- Collaborate to a significantly greater degree with the local (South African) ICT private sector to accelerate the government’s ISAD Plan of Action. This initiative should include donations of equipment and connectivity, along with providing the necessary skilled human resources to implement the plan.
- Provide the skilled technical human resources to municipal and provincial levels of government to adequately address the severe lack of capacity at this level to deliver public services. Include basic ICT training across a broad spectrum of staff and ensure that that staff has sufficient access to ICT facilities on a daily basis.

- Fund and provide the assistance to HIV/AIDS centers to develop a stronger opportunity for programmatic intervention to provide ICT access.

COUNTRY OVERVIEW

Introduction

South Africa has long been known for its enormous natural resources such as gold, platinum, silver, and diamonds, but the focus on these rather glamorous topics often overshadows how the nation has developed its very solid financial, legal, communications, energy, manufacturing, scientific, and transport sectors. The South African stock exchange ranks among the top twenty in the world.¹

The overall national economic position is secure and growing steadily, although the worldwide economic volatility in 2008 was felt in South Africa, as it was around the rest of the world. Real gross domestic product (GDP) rose from 3.7% in 2002 to 5.1% in 2007.²

In sharp contrast to these conditions that highlight the overall national economic position, it might be easy to overlook the striking contrasts that linger within the social sector. Eighty percent of the population is Black African, and the legacy of apartheid remains in evidence. The government, since the demise of apartheid, is working to address inequities in many ways: from building an infrastructure for schools, clinics, roads, and electrification projects in rural and underserved areas, to introducing broad-based black economic empowerment initiatives designed to create wealth among previously disadvantaged communities.

While the South African constitution assures that the public has a right to open access to information and communication technology venues and services, large segments of the population seldom exercise this right. This condition is driven in part by a lack of finances, education, employment, and fundamental technological skills.

The poorest 40% of the population is responsible for less than 3% of the total national consumption, while the wealthiest 10% has a 46% share. This picture points to South Africa as having one of the world's most disproportionate gaps between wealthy and poor people. In this country, where more than 80% of the population is Black African, it is notable that 93% of the unemployed poor are Africans, and among that group, 56% are female and 70% are below the age of 35.³

Geography

South Africa sits at the extreme southern tip of Africa and encompasses just over 1.2 million sq km. It stretches about 1,600 km north to south and approximately the same distance from east to west.⁴ The coastline extends more than 2,500 km from the Atlantic Ocean around the Cape of Good Hope to the Indian Ocean.

Although classified technically as semi-arid, South Africa has a considerable variation in climate, as well as topography – from lush, subtropical climates along the eastern coastlines, to Mediterranean climates with winter rains and hot summers along the south-western side of the country. The inland Karoo plateau is especially hot and dry and extends northward to the Kalahari Desert.

Political and Governmental Composition

South Africa's government is a constitutionally based multi-party democracy dominated by the African National Congress party (ANC), and features an independent judiciary. The national constitution is widely recognized as one of the most progressive in the world and guarantees media freedom and the right of the public to access information.

The Bill of Rights affirms the right of the public to equality, freedom of expression and association, property, housing, healthcare, education, access

to the courts, and access to information. Both the government and the nonprofit segments foster public information access through open access to television, radio, the Internet, mobile phones, outdoor marketing, and printed materials.

The country is divided into nine provinces, each one of which falls under its own provincial government structures and budgets. The Department of Communications is responsible for communications policy, the communications regulatory body, and the postal service. The DOC has been tasked specifically to establish affordable access to ICT.

Demography

South Africa has a population of 47 million of which about 80% are Black Africans, while the rest is composed of various groups (9% are white, 9% are colored, and 2.5% are Indian/Asian).

There are 11 official languages, 9 of which are African languages, and English and Afrikaans are widely spoken. A variety of religions are practiced freely, but Protestant Christians represent more than two-thirds of the total population.

Since the demise of apartheid and the establishment of the democracy in 1994, the government has worked towards addressing inequities. This effort is apparent across a range of initiatives, including building an infrastructure for schools, clinics, roads, and electrification projects in rural and underserved areas. The intent is to enable broad-based black economic empowerment initiatives designed to create wealth among the previously disadvantaged.

Despite significant successes in some areas, such as economic growth, the control of inflation, fiscal control, and tax revenue collection, a number of national objectives still have not been fully achieved. This situation is particularly evident with regards to the countrywide electrical power crisis, the lack of improvement in the education system, and the (historically) controversial response to the HIV/AIDS pandemic.

METHODOLOGY

South Africa is one of 25 nations selected to participate in this study, which was designed to assess the level of public access to information and communication technology venues in each of the countries. The South African portion of the study was initiated in early 2008 and focused on the ability of the public to access operating venues, with a specific emphasis on public libraries, telecenters (which are mainly located in the government-funded, multi-purpose community centers), and HIV/AIDS support centers. The study team also reviewed dedicated phone shops and self-assisted access points, such as kiosks, public Internet terminals, and the various available digital services.

This study consisted of two phases. The first phase combined 1) background research into the existing venues, 2) interviews with more than sixty key decision makers and experts, and 3) selected site visits to readily accessible venues in Gauteng. Additional information was gleaned from published and unpublished research reports that became available to the research team.

The second phase was a venue field survey conducted during June and July 2008. These venues were selected for their accessibility, the mix of urban and non-urban locations, user types, and the services offered. This phase featured an intentional bias towards including venues in disadvantaged and underserved areas.

The study results were developed only after giving due consideration to the interacting financial, political, and, most importantly, the socio-economic issues in South Africa. Since the demise of apartheid, the government has worked to address the inequities, but the legacy of apartheid is still very much in evidence. The study, therefore, placed a particular emphasis on previously disadvantaged and underserved communities.

Team Qualifications

The core team selected to conduct the South African study consisted of four researchers who have a wide range of South African and African experience in ICTs. The four included Tina James, Alan Finlay, Mike Jensen, and Mark Neville. They were assisted during the second phase by several field researchers.

Tina James has more than 25 years of experience in ICTs and has worked on a range projects in ICT policy and strategy development, technology management, “foresighting” and road mapping. Additionally, she has worked on ICT4D projects associated with telecenters, school networking, and support systems for SMMEs (small and medium enterprises).

Alan Finlay is an independent research consultant and writer who has several years of experience in ICTs for development and media in Africa. His work has included analysis of media coverage of HIV/AIDS and community adoption of HIV/AIDS messaging.

Mike Jensen is an independent consultant who has helped to establish information and communication systems in developing countries during the last twenty years. He has performed this work in forty African countries, as well as in Sri Lanka and Brazil. He has been asked to advise international development agencies, the private sector, NGOs, and governments in their efforts to formulate, manage, and evaluate their Internet and telecommunications projects.

Mark Neville has been extensively involved in implementing the Smart Cape project, which aims to broaden public access to ICTs in the Western Cape, particularly in Cape Town.

Four groups of other researchers conducted most of the fieldwork for this study and were directed to focus on the following four principal subjects: 1) InfoWizz, which is an SMME specializing in work in information and communications technology for development (ICT4D) and has been extensively involved in the SmartCape project

to provide access to ICTs, 2) A group of people dubbed “Infopreneurs,” who are people based in rural communities and who were involved in the survey work at telecenters. Additionally, they have completed ICT training developed and coordinated under the supervision of the Meraka Institute in South Africa, 3) Numerous HIV/AIDS Center staff members who assisted in the survey at their centers, and 4) a field researcher based in Gauteng who was also responsible for compiling data gained in the survey.

Literature Review

As an initial step in the study, the core researchers conducted a literature review that included more than one hundred documents and websites. Through interviews and personal contacts, the researchers also gained access to unpublished materials that helped to broaden their perspective for the subsequent research and fieldwork.

Venue Selection

Initially, five study venues were selected: 1) public libraries, 2) telecenters (including those operating out of the government-operated MPCCs and now called Thusong Service Centers), 3) HIV/AIDS support centers, 4) phone shops; and 5) self-assisted ICT access points.

At first, university libraries and schools also were included as possible public ICT access points, but the university libraries were eventually excluded because few of them allow broad public ICT access. That constraint is unlikely to change in the near future. Schools are problematic for the same reason, and many do not permit the general public to access their properties as a means of maintaining their security. Some school principals are notably reluctant to allow community access and point to established policies that dictate the use of school property. Although some schools were found to allow public ICT access, there was little quantitative information available, and it

would take extensive primary research to acquire that information.

The only three venues included in the second phase were public libraries, HIV/AIDS support centers, and telecenters. These three categories are the focus of the most significant government efforts to improve access and are perceived as the venues most likely to provide a fair representation of public ICT access points in the country. For the most part, phone shops do not provide publicly available Internet access or computers, and the self-assisted terminals are either in a pilot phase, are not yet generally available, or have not been particularly successful, as in the case of the public Internet terminals (PITs).

The following are specific details about each of the three key venue categories:

- **Public Libraries:** Ten public libraries were surveyed - three in Gauteng, four in Western Cape, one in Eastern Cape, one in Limpopo, and one in the Northern Cape provinces. Because Gauteng and Western Cape are the most advanced with regards to the availability of ICTs in libraries, most of the library surveys were conducted in these two provinces. The other venues are all in small non-urban environments and were selected to provide insight into how these venues operate in more difficult environments.
- **Telecenters and MPCCs:** Six locations were surveyed - one each in Western Cape, Eastern Cape, Northern Cape, and Gauteng, and two in Limpopo. All of these telecenters were in non-urban, underserved areas.
- **HIV/AIDS Support Centers:** Seven centers were surveyed - six in Gauteng and one in Limpopo. The centers in the Greater Johannesburg area represent a cross-section of the different kinds of HIV/AIDS centers in South Africa. Two of the centers had ICT programs up and running, while

three had the potential to host ICT centers in the future, or had the potential to host some limited form of public ICT access. One center was suitable for hosting only basic access. The center in Limpopo was included because it was part of a complex that includes a library, telecenter, and loveLife Center.

Inequity Variables

The following seven inequity variables are particularly relevant in assessing public ICT access venues in South Africa:

- **Socio-Economic Status:** The legacy of apartheid persists even 14 years since the shift to democracy and is the source of huge discrepancies along racial lines. Africans form the majority of the population and represent 79.6% of the total population of 47 million. The white population is estimated at 4.3 million (9.1%), the colored population stands at 4.2 million (8.9%), and the Indian/Asian population makes up just fewer than 1.2 million (2.5%).⁵ Despite recent increases in the number of wealthy black entrepreneurs and professionals, most of the wealth is still held by the white population. Not only do Africans form the majority of the poor, the numbers associated with the widespread poverty are compelling. They reveal that 93% of the unemployed poor are Africans, 56% are female, 70% are below the age of 35, 58% are from rural areas, 50% have no more than a primary education, and 72% have no job experience.
- **Educational Level:** South Africa has approximately 12.3 million full or part-time students, about 386,600 teachers, and 26,292 schools. This latter number includes 1,098 registered independent or private schools. Of all schools, roughly 6,000

are high schools, housing grades 7 through 12, and the lower six grades are in primary schools.⁶

- **Age:** More than 50% of the population is under 15 years old, and information service providers need to become cognizant of the needs of these young people. Unfortunately, increasing numbers of children are becoming the heads of households because their parents have died of HIV/AIDS-related illnesses. These households clearly have specific information needs.
- **Gender:** In November 2007, South Africa ranked 20th in the World Economic Forum's Gender Gap Index, and gender imbalances are especially evident in terms of single-headed households, levels of poverty, and levels of employment. With regard to information access, ICTs users are predominantly male, and the majority of those users are young.
- **Location:** Previously, the location of facilities that provided information access and services was closely connected to the distribution of the various racial groups. However, since 1994, the government has worked to address inequities largely by building an infrastructure for schools, clinics, roads and electrification projects in rural and underserved areas. As a key response to the inequities, South Africa is working diligently to expand, improve, and more evenly distribute access to information and ICTs.
- **Access to Reliable Infrastructure and Facilities:** This subject is tied closely to the discussion on facility location. During apartheid, large numbers of the black population were forced to live far from urban areas, but still near enough to provide a labor force for the cities. Others simply were forced into rural areas. These demographics are still in place and serve to ensure continued poor access to government ser-

vices, clinics, housing, schools, and electricity, as well as access to information and ICT venues. As a coexisting condition, the HIV/AIDS pandemic, combined with high poverty levels, has created a demand for increased healthcare and support.

- **Local Languages:** Of the 11 official languages, 9 are African languages and are spoken in addition to the more commonly used English and Afrikaans. English is widely spoken, with most communications being conducted in English, although in rural areas English might only be rarely spoken. There is a strong emphasis in government incentives to provide communications in local languages.

Data Collection

During the first phase of this study, more than sixty individuals were interviewed, either in person or by telephone. Also during the first phase, researchers visited the selected HIV/AIDS centers because the feasibility of including them in the second phase had to be assessed. The researchers did not make specific site visits to libraries or telecenters in Phase I, because the research team was already familiar with and/or had been working in those venues before the study began.

Two questionnaires were used during the second phase: one questionnaire was for users and the other was for operators. The questionnaires were customized for local conditions and produced valuable information. Because of both the size of the country and the sensitivity of the public to participating in surveys, particularly in rural areas, the survey was conducted by a team of locally based researchers coordinated by the project leader. The centrally located research team assembled the survey results and analyzed the data. All in all, 799 users were surveyed, in addition to operators at each of the venues.

Table 1. Overview of phase II survey responses from users

	Public Libraries	Telecenters MPCCs	HIV/AIDS Support Centers
Urban venues surveyed	3	0	3
Non-urban venues surveyed	7	7	4
Respondents in urban venues	118	0	142
Respondents in non-urban venues	213	160	166

OVERALL COUNTRY ASSESSMENT

Public Access to Information

South Africa has one of the most robust and well-developed media and information sectors in Africa. Constitutional provisions designed to protect media freedom and the rights to access public information assure that the country offers a relatively stable institutional framework in which to develop sustainable and meaningful public information strategies.

Both the government and the nonprofit sectors are leaders in providing public service information. In addition, the established media platforms are serving to support and nurture this concept, including television, radio, the Internet, mobile phones, outdoor marketing, and print materials. Nevertheless, the overall response to efforts to improve access to ICTs has been mixed. The Internet is used by only a fraction of the people, and access costs are high nationwide, particularly in rural areas. The deployment of ICTs is often hampered by limitations in the availability of reliable low-cost electric power. The telecenters are not functioning well, and many of them no longer operate. Mobile telephony has been the technology with the most pervasive impact, even in poor communities.

Internet access costs have been high because of the restricted telecommunications market environment, although this is now opening up. Many programs have suffered from limited funding and/or lack of implementation capacity. These issues are apparent at the national level where

it has been acknowledged that the USAASA (Universal Service Agency of South Africa) has not met its goals. It is also apparent at the local level, especially in rural areas, where anyone who obtains a modicum of ICT skill is likely to leave in search of a job in the city.

South Africa is facing an ongoing critical loss of technical and entrepreneurial ICT skills, and some sources estimate that 200 to 300 ICT-skilled people leave the country each month,⁷ driven by rising crime and concerns about the political situation, as well as attractive job opportunities in other countries. Despite high unemployment rates, it is still difficult to find sufficient numbers of skilled ICT workers to meet the rapidly increasing demand.

The deployment of ICTs in South Africa is similarly hampered by limitations in the availability of electric power, especially in rural areas, which still suffer from the lack of investment. This condition is also viewed as a vestigial remnant of apartheid. Telecenters are not functioning well, and many sites are not operating, although proposed initiatives to reinvigorate the centers may improve that situation.

So far, the most notable broad-based ICT access impact has been in the private sector, where entrepreneurs operate thousands of “phone shops,” but this shift has triggered a very complex and ongoing domino effect in the network of information venues.

To begin, the phone shop operators obtain subsidized voice call rates (about 60% cheaper) from the mobile operators who, in turn, are required to provide discounted tariffs as part of their own

license obligations. In an ironic twist, this subsidy has led to the death of the landline phone shops that had offered local calls about 50% cheaper than the mobile phone shops, which had a much lower national rate. The result was then a sharp reduction in the number of operating cybercafés. The cybercafés had most often been started by landline phone shops that could more easily obtain a DSL broadband connection because the mobile-operator-supported phone shops did not provide Internet access.

Access to wi-fi venues appears to be marginal because of the restrictions limiting its use within property boundaries, as are all types of “self-provisioning,” except for the fixed and mobile-licensed telecommunication operators.

Internet cafés or cybercafés provide games, and some telecenters earn revenues from these sources.⁸ Interestingly, some Internet cafés post signs forbidding the use of the equipment for scams. Also, local spam is becoming a more significant concern and takes up scarce bandwidth; most spam originates outside the country.

Radio is the most widespread ICT medium. An estimated 88% of the rural population listens to radio in any seven-day period. South Africa also has by far the largest television audience in all of Africa, and there are more than four million licensed television households. The national television network is composed of four full-spectrum free-to-air channels and a satellite pay-TV channel. The network services include 55 video channels and 48 audio channels that operate 24 hours a day.

Additionally, South Africa has a robust collection of print media. In 2007, the newspaper market consisted of 17 daily newspapers, 7 Sunday newspapers, 24 weeklies, and 161 local or country newspapers, most of them weeklies. There has been an explosion in the number of magazine titles in recent years, and the business-to-business magazine sector is considerably larger than the consumer market. Most of the publications have websites, and there are more than 600 “blog/net-

zine” websites in South Africa. At least twenty of these sites specialize in daily news.

There have been significant improvements by the government in the public library network through concerted efforts to extend the libraries into more remote and underserved areas, and to provide more ICTs in these facilities. The increased emphasis on library enhancement and expansion highlights the need to develop more and better local content in the libraries.

The government has made solid progress to bring greater public access to information and ICT venues but still faces a formidable task. Fundamental concerns remain that must be resolved. Clearly, much of the population lacks access to electricity, clean water, health care, telecommunication services, and other essential services. These people also face basic concerns regarding adequate housing, employment, and childcare opportunities. These underserved people have little access to information that would improve their quality of life, and ICT access is still viewed by many as a non-essential interest.

Given the socio-economic conditions throughout the majority of the population, including the impact of HIV/AIDS and unemployment, practical public service information is a priority for disadvantaged communities.

Access, Capacity, Environment, Inequity Environment in South Africa

While there have been some advances in the demographic composition of disadvantaged groups since the mandated demise of apartheid, the racial makeup of economically and socially vulnerable groups remains a lot like it had been under apartheid. The most vulnerable people still are women, children, illegal immigrants, the unemployed (a third of the adult population), people with HIV/AIDS, and economic/political refugees from other countries. Several serious incidents of xenophobia occurred in 2008.

While huge numbers of the population face poverty daily, it is most heavily concentrated in three of the country's nine provinces. The percentages living in poverty there are staggering - Free State (63%), North West (62%), and Limpopo Province (59%). These three provinces have a disproportionately high concentration of previously marginalized communities.⁹ At the same time, people who live in informal settlements typically lack the municipal infrastructure necessary for basic services such as water, electricity, and sewage. It has been shown that 93% of the unemployed poor are Africans, 56% are female, 70% are below the age of 35, 58% are from rural areas, 50% have no more than a primary education or none at all, and 72% have no previous job experience.

HIV/AIDS is pandemic in much of Africa and is no less so in South Africa across all population groups. However, it has been most notable among the economically disadvantaged segment of the population. To appreciate the importance in the South African context, consider these key statistics. A report released by the Actuarial Society of South Africa in November 2006,¹⁰ estimates that 5.4 million people (or 11% of the total population) was infected with the HI virus including 19% of the working age population between the ages 20 and 64. The HIV prevalence rate in women was highest between the ages of 25 and 29 (33%) and in men between the ages of 30 and 34 (27%).

In the presence of the country's difficult social conditions, South Africa's technological resources include a vibrant and diverse mix. This mix boasts a broad category of capabilities, ranging from world-class software development and tight integration of ICTs into daily routines among the wealthier groups and in the more industrialized areas, to a virtual absence of capacity and use in rural areas.

The government has committed to placing a full range of government services online, along with some private sector e-services, such as the mass media (news), e-commerce (online purchasing), banking, and money transfers. Several of

these services are becoming more widespread, especially through mobile phones. The education sector also is seeing increasing use of ICTs as more schools are equipped with computers and Internet connectivity, and as specialized ICT-training centers are established.

The demand for public Internet access services is growing at an unprecedented pace driven by increasing demands for low-cost international communications via email or Voice over Internet Protocol (VoIP).

Information Needs of the Underserved Communities

Disadvantaged and underserved people often lack access to essential services. Consequently, much of the agenda of the post-apartheid government has aimed at extending the quality and range of essential services enjoyed by privileged segments of the population to black townships and informal settlements, and redressing the lack of business, land, and housing ownership in black communities. Similarly, these communities also lack access to information that would improve their lives. Although ICT access has not in the past been considered essential, a number of initiatives, such as the USAASA telecenters and SchoolNets, are in place to address the lack of access to ICTs in poorer communities. Additionally, there is an increasing recognition that universal service objectives should go beyond providing just telephone services to include more advanced digital services.

Given the socio-economic conditions among the majority of the population – including the impact of HIV/AIDS and unemployment – practical public-service information is a priority for disadvantaged communities. This aim includes public awareness initiatives that inform people of ways to apply for grants and ID books, and to gain access to government information on HIV/AIDS, tuberculosis, and general healthcare. The latest educational opportunities, funding resources for training, employment, and information on

the latest local government tenders would also be valuable.

Economic, Policy, and Regulatory Environment

The Department of Communications (DOC)¹¹ is responsible for communications policy, the communications regulatory body (ICASA), USAASA, and the postal system. The DOC has been overseeing a process of “managed liberalization” of the sector through a regulatory framework that has aimed at ensuring affordable access to ICTs.

In 1997, following a partial privatization of the country’s landline operator, Telkom secured the extension of its monopoly for an additional five years. For the second phase of reform, the Telecommunications Amendment Act (Act No. 64 of 2001) was passed and enabled a long chain of related developments. The effect was to legalize a second fixed-network operator (licensed in 2006), along with another mobile competitor and a new category of under-served area licenses to salvage the unsuccessful extension of services into economically marginal areas during the exclusivity period. The Amendment Act further granted a multi-media license to the incumbent broadcasting signal distributor together with an international gateway license. The Amendment Act also introduced a number of competitive measures, such as carrier selection and number portability.

In 2009, self-provisioning of infrastructure for licensed operators was introduced and further deregulation of the sector in general is being discussed, but local loop unbundling is not expected to take effect until 2011. As a result, the sector has so far continued to be characterized by relatively high retail prices, large profits for the providers, job losses, licensing delays, and little new foreign investment in the sector.

A report by the South Africa Foundation¹² highlighted the discrepancy in telecommunications costs between South Africa and comparable countries. The report notes, for example, that

the cost of ADSL in South Africa is 139% more expensive than the average price of the corresponding service in 15 countries surveyed. The study also revealed that local call costs (peak) are 199% more expensive than the average price in all the countries surveyed. In addition, local call prices have nearly doubled since the privatization of Telkom, in spite of significant efficiency gains that were realized when Telkom eliminated nearly half of its labor force since 1997.

The delays in bringing the second national landline operator online, combined with the de facto continuation of Telkom’s monopoly both in retail fixed services and in wholesale facilities provisioning, was a major factor in the slow progress toward more affordable access.

The DOC also is tackling the issue of the Under Served Area Licenses (USALs) that have been issued in some underserved areas. The DOC aims to conduct a review and to reconsider the role of the USALs, especially in light of service convergence and the USAL’s observed inability to provide last-mile regional services.

The government is giving increased attention to the nation’s library system, and is aware that the overall system lacks sufficient source materials, especially in a digital format, but also is aware that libraries are playing an increasingly important role as information access venues. Libraries serve as study and reading areas and create an opportunity to expose young people to ICTs. Their expansion to provide Internet access is a logical next step.

Libraries are being extended into underserved areas, and the government has been providing more funds for libraries. In 2006, the National Department of Arts and Culture (DAC) announced the availability of about US\$132 million to recapitalize the community library system. This initiative was expected to be the DAC’s largest and most ambitious project, at least until 2009, requiring an ongoing partnership at all tiers of government, especially with provincial and local governments.

Even before the results of the present study were analyzed, it was widely recognized that South Africa was experiencing a rapid and disheartening loss of people who have technical and entrepreneurial ICT skills. Various measures have been undertaken to address this pressing issue, but seem so far to be only marginally effective.

Despite high unemployment rates (officially 23.2% in September 2008),¹³ it is difficult to find an adequate supply of skilled ICT workers to meet the rising demand.

As for the overall scope of the nation, the government has increased its efforts to improve access to computers and the Internet. The DOC's 2007-2008 strategy and budget prioritized access to educational and health institutions, the postal service, government offices, and the Thusong centers in a concerted effort to improve and expand electronic communications networks and services and enhance wireless broadband communication. During 2009, the government expected to have a useful suite of solutions available for citizens, with ICT as one of five service-delivery work streams that will make up the government's Single Public Service plan.

A Universal Service Access Fund already exists, and all licensed commercial telecommunications providers are required to contribute 2% of their revenues to the fund. The actual provision of public access computing facilities is particularly limited, and, in part, is constrained by the high cost of bandwidth and the technical difficulties involved in operating a distributed computer network in facilities staffed by people with little or no applicable technical skills.

Sentech, the parastatal broadcast infrastructure operator, has established a national wireless broadband network. Municipalities will also be assisted in deploying their own broadband networks, and Under-Served Area Licensees are also expected to help fill in the gaps. The government has licensed a new parastatal operator, Infraco, to provide additional backbone infrastructure, and has provided Infraco with about US\$92 million

in initial capital finances for national and international fiber connectivity. If all goes according to plan, undersea fiber links to Brazil and the UK will be established that will also provide onward connectivity for UhuruNet, the NEPAD (New Partnership for Africa's Development) ICT-broadband infrastructure network for East Africa via branches to West African countries along the way.

In addition, the government announced the establishment of the Investment Council that will focus on positioning South Africa's imports and exports globally and also on generating direct foreign investment through international collaborations.

Collaboration Practices Already Existing Across Venues, and Future Opportunities

At the time the study was conducted, the government had already acted to improve coordination in ICT service deliveries. It was announced that an Inter-Governmental Relations Forum (IGRF) that looks at synchronizing disparate ICT developments at the national and provincial level was working with a Ministerial ISAD (Information Society and Development) Committee to drive the development of the information assets in South Africa (including the implementation of WSIS (World Summit of Information Society) agreements). In February 2007, the cabinet approved a National Information Society and Development Plan.

USAASA's strategy also places a stronger emphasis on its role as a facilitator, rather than as implementer, of universal service initiatives. This focus will require stronger relationships between implementing agencies and the private sector.

There also have been signs of the self-organization of groups, such as telecenters. For example, a Telecenter Association of South Africa (TASA) exists. TASA aims to represent telecenters and MPCCs or other access initiatives, including phone shops.

Buzz Factors

The HIV/AIDS sector is recognized for its innovative, multi-media information initiatives that have included television programs, outdoor advertisements, radio broadcasts, printed materials, and Internet sites, but actual access to ICTs is not always evident among initiatives interacting with the most vulnerable communities in South Africa. The HIV/AIDS Support Centers offer an untapped opportunity to add digital ICTs to their everyday services.

The increased emphasis on library development by the government has created the potential for a stronger emphasis on creating local content through local libraries.

The government's Thusong centers have created community hubs for a variety of activities, and a strengthening of their public ICT access capacity will go far to reach larger audiences.

New low-cost wireless broadband and international connectivity leading up to the 2010 World Cup present future opportunities for broader ICT access.

Who Decides What Constitutes Legitimate Use of Information Resources

There are divergent opinions among the users of public access venues with regards to what constitutes appropriate use of the venue resources. One segment maintains that computer games (online and software on CD-ROM/DVD) should be banned, while others claim that gaming teaches valuable skills in mouse control, hand/eye coordination, tactical skills, and possibly even some social skills. Schoolteachers often remove even the simple games pre-loaded with Microsoft products. Internet cafés provide some games, while some telecenters receive useful revenue streams from this source. Internet cafés, in some cases, carry signs forbidding the use of the equipment for scams. Local spam is becoming a more significant

concern, although most is received from outside the country and takes up scarce bandwidth.

The Shifting Media Landscape

Mobile phone service in South Africa, as well as throughout the rest of Africa, has been the one technological innovation with the most pervasive impact, even in poor communities. However, its potential as a way to access public information has not been fully exploited. Little attention appeared in government information initiatives to improve and expand mobile capabilities and content. Aside from voice calls and traditional personal text messaging, mobile phones have been used primarily for low-level applications, such as advertisers' text messages, ring-tone downloads, and photo transmissions.

A few additional innovative services are now becoming more widespread. These include mobile phone banking and money transfer services, as well as some health applications, such as medication reminders and reception of medical-test results. Increasing numbers of online e-commerce websites also confirm transactions via text messages. The government has started using mobile text messaging to allow citizens to monitor the progress of their personal document applications (passports, ID, etc.).

The Mxit message exchange program for mobile phones (GPRS/ 3G mobile phone bands) has been a huge success among the South African youth. The technology allows mobile phone users at an extremely low cost (equal to about one US cent per message) to chat with people on their computers and to connect with other Mxit users on their mobile phones from anywhere in the world. The present technology permits messages of up to 2,000 characters to be sent. As an additional feature, Mxit also allows connections to MSN messenger, Yahoo!, ICQ, AOL messenger, and Jabber communities. The existing subscriber service provider issues the billing as part of its data-service packages. One survey¹⁴ indicated

that MXit usage had overtaken Facebook usage among users under 44 years of age. Mobile instant messaging usage more than doubled in the 12 months prior to the end of the study, and the majority of the usage was believed to be on the MXit platform.

VENUE ASSESSMENT

The study focused on five types of public access points: 1) public libraries, 2) telecenters, most of which operate out of the government-funded, multi-purpose community centers, 3) HIV/AIDS support centers, 4) phone shops, and 5) self-assisted ICT access points, such as kiosks, public Internet terminals, and digital doorways. The Phase II user survey was used only in the public libraries, telecenters, and HIV/AIDS support centers.

Public Libraries

South Africa has 1,537 libraries including about 79 mobile libraries, and the entire system features relatively few well-resourced libraries in the old “white” municipal areas, and a large number of noticeably under-resourced libraries elsewhere. However, the government is increasingly devoting a heightened level of interest in support of the system as a whole. During this study, it was established that the central government level had enacted a special allocation of about US\$ 132 million¹⁵ from 2006 to 2009 to upgrade and expand libraries. The DAC is responsible at the national level for the library system, and the allocation of these funds has translated into that department’s higher priority for libraries.

While provincial governments are ultimately responsible for libraries, constitutional change has left them somewhat at odds regarding the split in financial responsibilities with the municipalities. A substantial number of municipalities, particularly those regarded as low-capacity municipalities, lack

the administrative resources to collect and report on library budgets. Strained relationships, caused mainly by the legal and funding issues between the municipalities and the provincial government, have exacerbated this problem.

The need for computers and Internet access in libraries is widely regarded as as much a priority as the need to increase the number of books and other library resources.¹⁶ This demand is increasing not only for internal administrative purposes, such as electronic cataloguing and book loans, but also for Internet searches. Some provinces have more advanced strategies for improving libraries and equipping them with ICTs, (most notably the Western Cape, Free State, Gauteng, and KwaZulu Natal), while other provinces have lagged behind and have done little to resolve the problems.

Access to digital ICT services varies widely from a high service delivery in the Western Cape (43% of public libraries, most of which are in the Cape Town area), to almost non-existent in other provinces and in smaller centers, where few if any computers are available for public use. Libraries in general are understaffed and librarians lack the skills to adequately assist users searching for information. ICT equipment and Internet access are regarded as priority needs at almost the same level as the acquisition of new books. The lack of serviceable furnishings in libraries also affects the value of the libraries as places to study. Libraries are largely used by schoolchildren for educational purposes and by students studying through distance-educational institutions, such as the South-African based UNISA (University of South Africa). Very few librarians have received ICT training.

Libraries were previously regarded as rather elitist, but this perception has changed considerably since 1994. The government is working to actively extend the reach of libraries into underserved and more remote areas through new library construction and by adding additional container libraries and mobile libraries.

The user survey performed for this study revealed the following:

- Libraries have limited operating hours. Most operate between 36 and 44 hours per week because most libraries are understaffed. Libraries are often open only during traditional working hours and, in limited cases, on Saturdays. Smaller libraries are generally closed during the lunch hour, in the evenings, and over weekends. These hours limit access to those community members who are in irregular employment or who are unemployed.
- Library subscriptions and ICT access are often not affordable to low-income people. Many library users are not registered users, so while they can make use of the library facilities, they cannot borrow books. Some librarians regard the need to stimulate a greater reading culture as an important challenge, particularly among the previously disadvantaged population.
- ICT access costs vary. The SmartCape project allows any registered library user 45 minutes of free access each day. However, in most cases, the lines are slow, and many computers still use dialup 56 kbps modems. Some libraries charge up to US\$4 per hour for Internet access.
- There are huge demands by regular users for ICTs in libraries and for training in ICT skills.
- More than 30% of the surveyed users cited the lack of relevant and current information available in libraries as regarded as a significant barrier to more effective use of ICTs. Conversely, less than 8% saw the lack of information in a relevant language as a problem. These two views may relate to the fact that the user base in libraries tends to be young with more than 70% to 80% of the users between the ages of 15

and 35, and, therefore, more likely to be familiar with English.

Telecenters

The USAASA carries a mandate by the South African government to ensure that all citizens have equal access to ICTs. As such, the USAASA seeks to provide universal service, which is defined as “a reliable connection to the communication network that enables any form of communication to and from any part of South Africa,” and to provide universal access, defined as “the ability to use the communication network at a reasonable distance and affordable price which provides relevant information and has the necessary capacity in under-served areas.”

Since 1997, USAASA has rolled out 154 telecenters.¹⁷ They can be found in the government multi-purpose community centers (now called the Thusong Service Centers), as well as in prisons, as stand-alone telecenters, in containers, in women’s organizations, churches, community radio stations, healthcare centers, homes for the disabled, youth centers, HIV/AIDS centers, ex-combatant centers, rural development centers, homeless shelters, and elsewhere.

However, the reality is that many of the existing telecenters are not operational because of high connectivity costs, inadequate support and training, and the lack of appropriate content and applications. A USAASA strategy document dated December 2007 recognized the problems that have been encountered. Furthermore, the document stated an intent to focus on the rehabilitation of existing telecenters, to place a renewed focus on non-fee schools, Further Education Training (FET) institutions, libraries, stand-alone access points, and Thusong centers. The USAASA also supports the development of Community Digital Hubs, which are community centers deployed in presidential nodal areas for rural development.

The electrical power supply and distribution network in South Africa has often been unreli-

able and increasingly expensive, especially in the more remote areas of the country. This situation caused a concern that not enough effort has been made to provide alternative power supplies to these public ICT access points. Because most of the telecenters depend on satellite connectivity (VSAT), a reliable power supply is essential for maintaining ongoing ICT services.

Clearly, the cost of broadband and Internet access remains too high for the majority of the population. In addition, operational costs are too high for many telecenters to keep their Internet access functioning. And, overall, there is a lack of adequate management skills to ensure long-term financial stability.

Research, both from the Phase II user survey and from other evaluations performed on telecenters, revealed the following issues:

- An evaluation of Thusong centers¹⁸ points to several factors that limit access, such as long distances to travel to reach the centers, inappropriate operating hours, facilities in need of repair, low levels of awareness of services offered by telecenters, and poor service delivery. Younger people in particular commented that their needs were not being addressed. On a more positive note, the general impression was that Thusong centers could develop a useful service if service delivery issues were resolved. These findings were also confirmed in an unpublished audit conducted in Kwazulu Natal in 2007.¹⁹
- The user sample for this survey is both small (n=160) and young (90% under the age of 35 years), and, therefore, cannot be regarded as fully representative of larger communities, and particularly of older members of the community. However, other research²⁰ (African response, Kwazulu Natal audit) suggests that communities using telecenters or the Thusong centers are unfamiliar with what ICTs can offer, although the younger users generally tend to be more aware.
- The user survey conducted during this study revealed the following about telecenter users:
- The services appear to be used equally by men and women.
- Most users are Black or Colored.
- More than 90% of the users are under the age of 35, and 67% of them are between the ages of 19 and 35.
- 44% of users visit telecenters between one and three times each month, and the majority of these users visit once a week.
- 53% use the telecenters during the week as compared to 22% who use the venues over weekends. (Most telecenters are only open on Saturdays.)
- Most users visit the telecenters in the mornings.
- Existing data suggest that there is an intense need for ICT-literacy training. Forty-six percent of the users in this survey regarded the lack of training as a major barrier and ranked it second only to the overall lack of adequate services provided. The huge demand for ICT training has become a livelihood source for telecenters. The lack of Internet access was also seen as a major barrier by 35% of users.
- Demand for most ICT services is extremely low, particularly in rural areas. ICT usage and related services among residents is limited primarily to photocopying and prepaid telephone services.²¹
- Thirty-two percent of telecenter users surveyed for this study said cost was a major barrier in using ICTs. In many communities, few people have the money to spend on ICTs. It was determined that ICT services are still too expensive.
- Most users use the fax and photocopy facilities in the smaller telecenters, although computer training is popular (even over-

- subscribed) and limited because there are too few computers available for training.
- Email and web browsing are the most popular services (61% and 72%, respectively). However, 61% said that they also accessed brochures and pamphlets at the telecenters, and it is noteworthy that 38% of the users questioned said that they used telecenter staff as sources of information.
 - Health information and government information were sought most frequently (40% and 52%, respectively). Personal use was cited at 54%.

HIV/AIDS Support Centers

Three HIV/AIDS support programs were assessed, and all were geared towards supporting orphaned and vulnerable children (OVCs), child-headed households (CCH), and young people in combating HIV/AIDS. The programs are focused largely on disadvantaged communities.

One program, called loveLife, is sponsored 65% by the government and is intended to empower young people with life skills. This program offers youth-friendly clinics and counseling services to help young people deal with HIV/AIDS and other social issues they often confront in their lives and in their communities.

Another program is called Nurturing Orphans of AIDS for Humanity (Noah) and focuses on building capacity in communities to enable the residents to care for orphaned and vulnerable children.

The Starfish program focuses on building capacity in nonprofit organizations (NPOs) and community-based organizations (CBOs) to respond to the needs of orphaned and vulnerable children.

HIV/AIDS support centers come in various shapes and sizes and have different institutional capacities. They range from little more than a room in a clinic, to fully operational multi-purpose centers and serve as training sites for volunteers

and administrative hubs for outreach programs. They offer ICT resources for beneficiaries and the immediate community, as well as services, such as after-school educational care.

Overall, loveLife centers are a mixture of Y-centers (16),²² clinics (335), partnership schools (approximately 3,000), franchises (124), and outlets (217).²³ Noah has established 112 arks, including 33 resource centers.²⁴ Starfish works with 81 NGOs and CBOs, and 57 CBO groups are beneficiaries of the Starfish Mentoring and Training program²⁵ in 2008 and 2009.

The review of the needs and services offered at the centers indicated that there is a high relevance of the services to the targeted beneficiaries, including counseling, life skills, clinic services, feeding schemes, education (such as homework support), and OVC care generally. All of the centers were within a reasonable walking distance of most of their intended beneficiaries, while outreach programs into homes, clinics, and schools meant that beneficiaries were able to integrate the services into their daily routines. However, some respondents to the survey in urban centers felt that center operating hours inhibited better use of the center's services.

The survey suggests that in both urban and non-urban areas, information concerning education, health, and government online services was the information most frequently accessed. In non-urban centers, information about agriculture was more in demand, while current news was in greater demand in urban centers. Business information was in equal demand at both urban and non-urban centers.

Most of the information offered by the centers that were visited is available in print, such as loveLife materials or materials from NGOs and the Department of Health, or are disseminated face-to-face through the centers. While one loveLife Y-center visited during the study had a computer center and radio studio, only two of the Gauteng-based centers surveyed had (or planned to have) ICT access interventions.

On the whole, print is an effective medium, given the nature of HIV/AIDS programs, such as the need for face-to-face counseling or hands-on OVC care and mentoring, and is considered appropriate. However, all of the programs stress the need for computer access for their target beneficiaries and say that the beneficiaries have asked for this service.

There is also a high degree of technological awareness, including of the Internet, among the beneficiaries, who feel the need to set up interventions, such as computer centers, even when the skills, know-how, and exposure to technology is largely absent.

When ICT training centers have been established or are being established, their use appears to be in line with the immediate needs of the community. Research suggests that training and computer literacy are high priorities for people living in disadvantaged communities. This prioritizing is followed by requests for access to computers to draft documents, such as business plans or CVs, and this kind of access is offered to the community at some loveLife Y-centers. Online educational programs are also offered, or are planned, at some HIV/AIDS centers.

When ICT services were available, most information was accessed by surfing the web and by email. However, there was evidence that some respondents used chat rooms and similar interactive online vehicles.

The ICT skills of staff members at the centers varied widely, and only a few centers showed that they had the technical capacity in place to manage and run a computer center. At the same time, a number of respondents to the survey indicated that a lack of ICT training would be an inhibitor in accessing online information at the centers.

Phone Shops

Phone shops were established in response to the Community Services Obligations attached to the licensing conditions of South Africa's three mobile operators: Vodacom, MTN, and Cell-C. Vodacom

was tasked to establish 22,000 community service lines (or subsidized lines), MTN 7 was tasked with 500, and Cell-C, the latecomer to the South African mobile market, was tasked with 42,000.

All of these service lines were to be established in underserved areas. The solution adopted by the service providers was a "phone shop" network that allowed entrepreneurs in disadvantaged communities to sell subsidized call time to consumers, using a revenue-split business model. The phone shops are located on an entrepreneur's own premises, or in a branded shipping container provided by the mobile operator. The entrepreneur buys handsets, various devices to measure and determine call duration, as well as airtime acquired from the operator. These tools are housed in the container, or on the entrepreneur's premises, and are attached to a mast connected to the GSM network. By the end of 2007, Vodacom had established nearly 134,000 lines and MTN nearly 15,000. Cell-C had met its CSO obligations. Operators have begun experimenting with expanding the services to include Internet access.

Self-Assisted ICT Access Points

Three types of self-assisted ICT access points were included in the South African study: 1) public Internet terminals (PITs) provided through the South African postal service (SAPO), of which more than 825 have been placed in post offices, 2) Digital Doorways, which are e-learning kiosks developed by the Meraka Institute of the Council for Scientific and Industrial Research (CSIR), with funding from the Department of Science and Technology. More than 200 Digital Doorways have been deployed, mostly in rural and deep rural villages, and all 200 are in public locations with 24-hour free access, and 3) the planned 15 Vuvuzela pilot kiosks for which USAASA has awarded a tender. These kiosks will enable various office applications to be accessed as well as emails, Internet access, and surveying, among other uses.

SUCCESS FACTORS AND RECOMMENDATIONS

Summary of the Lessons Learned in South Africa

At the end of the study period, it was concluded that the most immediate need was to provide more functioning low-cost public ICT access points throughout the nation. More local content is required both in English and in local languages. Furthermore, the information should be presented in a format that is relevant, accessible, and understandable to the people in underserved communities. Ideally, a significant portion of the information should be provided by the underserved people themselves, which in turn would require higher levels of ICT training and the ability to create content. The Western Cape's Ubusha program, which develops local content for the SmartCape project, could serve as a model in other provinces.

The huge demand among users for educational resources needs to be addressed, and more information is needed on what subjects users most often want to find on the Internet. More schoolbooks and study books should be made available through libraries, and the availability of these books in digital format should be encouraged.

Libraries are playing an increasingly important role in providing access, particularly for scholars, students, and people seeking employment. The fact that libraries are being extended into underserved areas, and that the government has awarded financial grants to upgrade the library sector, indicates recognition of the role of libraries and ICTs in meeting community needs. Libraries are particularly valuable as venues for study and research. As such, libraries create an opportunity to expose young people to ICTs. The need for homework clubs and assistance in completing homework assignments could be addressed through Cybercadets (young paid workers who could offer first-level ICT support), in much the way this is done in the KwaZulu Natal libraries.

There is a strong need to create increased digital content related to the school curriculum. Content designed to provide homework assistance could be developed to meet the needs of school children. Besides libraries, this content development has a particular application in the after-school care offered by HIV/AIDS centers.

The Thusong centers are widely used and present an opportunity to expand and accelerate the roll out of ICT access points in underserved communities. These centers already have high volumes of foot traffic. Strengthening the ICT capacity and marketing of telecenters in these Thusong centers should provide increased ICT access for a broader public.

The HIV/AIDS support network throughout the country is used particularly by young people and holds great potential for future ICT rollout. The network's function and effectiveness could be expanded by providing more relevant content and by establishing ICT access points to target beneficiaries in these venues. Mobile access has untapped potential for applications in home-based care programs.

Although not surveyed for this study, the existing network of phone shops, particularly in underserved areas, plays a role in providing more affordable telephone access in underserved communities. The expansion to provide Internet access suggests a logical next step.

The extensive penetration and adoption of mobile telephony appears to have been largely ignored by government initiatives. The need for more mobile content, especially in local languages, as well as e-government services, requires attention.

Success Factors and Recommendations for Promoting Public Access to ICTs

Several key success factors for promoting public access to ICTs emerged during the study:

- Lower the cost of Internet access.
 - Increase broadband infrastructure in rural areas. This goal could be achieved through competition by introducing new participants in the sector.
 - Provide a stronger focus on delivering services to the public, increase awareness and public education about the role of ICTs, establish more favorable operating hours at the venues, provide more relevant content in traditional and new media, and develop more local materials to meet community needs. Better content is particularly required regarding education, health, and financial applications.
 - In collaboration with government efforts, enable the private sector to develop more access points, including mobile operators, franchise Internet cafés, and self-assisted terminals, such as the Digital Doorways.
 - Increase collaboration among the various government departments 1) to create more public ICT access points in underserved and rural areas, and 2) to provide mass ICT-literacy training to users and the staff members in venues that host ICT access.
 - Leverage the capacity of sustainable projects for ICT pilot projects and roll out.
- field for large and small operators in inter-connection agreements.
 - Improve the availability, reliability, and use of low-cost electric power in rural and urban areas by: 1) improving support for alternative energy systems through subsidies, loans, and capacity building, 2) providing greater policy support through Independent Power Producer Policies that will allow renewable energy facilities to sell excess power back to the grid, and 3) promoting the use of computer devices that consume less power.
 - Collaborate with South Africa's ICT private sector to accelerate the government's ISAD Plan of Action, which aims to improve public access to ICTs. When this study concluded, only the international IT companies, HP, Microsoft, Cisco, and NIIT, were supporting the Plan.
 - Provide additional skilled technical human resources to municipal and provincial levels of government to help address the severe lack of capacity at this level to deliver public services. This initiative should include a large-scale effort to train a broad spectrum of staff in ICT skills, as well as include ICT training and work programs for the youth to provide them with marketable ICT skills in website and database development. This roll out should be accomplished while assisting government efforts to strengthen its capacity to create national geo-spatial databases to archive local history by capturing local folklore, cultural history, and crafts, and by providing first-level support to users in libraries and telecenters.
 - Explore a programmatic intervention by those who can deliver ICT funds in partnership with one or more of the HIV/AIDS programs. The managerial framework and the expressed need for such an intervention are recommended.

Recommendations

The following key recommendations, if implemented, would have a positive impact on extending the reach and service of public ICT access points:

- Accelerate deregulation of the telecommunication sector to encourage competition, reduce costs, and increase accessibility to the Internet. This initiative would: 1) allow the ISM bands (license-free) in the wireless spectrum to be used for shared use and mesh wi-fi use across land boundaries, 2) allow them to interconnect with the public networks, and 3) ensure a level playing

CONCLUSION

In conclusion, the research confirmed much of what has been found in other surveys with regard to user needs. The need to assess, and in the case of telecenters, re-assess the successes and failures of ICT access initiatives points to a new maturity and level of pragmatism in delivering information to users on the part of the South African government. The increased emphasis on implementation and the need for stronger partnerships between government departments and with other partners are positive signs for better universal access in the future.

The South African government has put most of the necessary policies in place to address universal public access to information and ICT venues. However, problems have arisen in implementing these projects given the severe nationwide lack of human capacity in ICT and project-management skills. A lack of competition in the telecommunications arena has resulted in high prices and lower levels of infrastructure development that have a great impact across all the venues covered by this study. Similarly, the high cost of telecommunications and lack of access to the Internet have been major constraints.

Libraries have been relative newcomers in providing ICT access, but they exhibit a number of elements that could be critical success factors. First, they are well used by young people who already make use of the facilities for study purposes, and, second, access to web-based resources is a natural extension in their search for information. The government funding allocation is a much-needed means to upgrade these venues, particularly in underserved areas.

Outside of programs, such as loveLife, most of the HIV/AIDS support centers do not have public ICT access points. Where these points do exist, they are well used and support the core functions of the centers. Where public ICT access does not exist, the necessary operational infrastructure is in place in many instances, and using these venues for large-scale deployment of ICTs seems to be a logical next step that should be considered.

The intense demand for ICTs is evident across all venues, as is the need for a massive effort to provide basic ICT literacy training. More relevant content is needed, particularly in educational resources.

The user survey across the three venue types revealed similar patterns regarding the need for better service delivery and highlighted the need for longer and more favorable operating hours, more computers with faster Internet access times, and more content in local languages. The high proportion of users under the age of 35 years is evident across all the venues, and presents a challenge to future ICT access initiatives to find ways to train and assist older people.

ENDNOTES

- ¹ <http://www.southafrica.info/about/facts.htm#democracy> Accessed 18 August 2008
- ² Ibid
- ³ http://www.idasa.org.za/index.asp?page=output_details.asp%3FRID%3D62%26oplang%3Den%26Pub%3DY%26OTID%3D5. Accessed 18 August 2008
- ⁴ <http://www.southafrica.info/about/geography/geography.htm> Accessed 18 August 2008
- ⁵ http://www.southafrica.info/ess_info/sa_glance/education/education.htm Accessed 18 February 2008
- ⁶ *ibid*
- ⁷ <http://web.archive.org/web/20080205180432/http://www.opt-init.org/framework/pages/appendix3Case6.html>
- ⁸ Editor's note: as we prepared the final manuscript for this book, the Editor had the opportunity to visit Internet cafés set up by local entrepreneurs in Kayelitsha, a traditionally marginalized township near Cape Town, South Africa. The experience of these internet cafés is remarkable, as they offer community access and training effectively and sustainably, with no government

- subsidy or support. These experiences are not included in the analysis presented in this chapter.
- ⁹ SA Country Review Report No 5 - September 2007. Published: 19-10-2007. South African Report No 5 - September 2007 <http://www.aprm.org.za/>
- ¹⁰ Actuarial Society of South Africa (2006) Summary of Biennial Report on the State of the South African HIV/AIDs Epidemic <http://www.doh.gov.za/docs/reports/2006/summary.html>
- ¹¹ <http://www.doc.gov.za>
- ¹² South Africa Foundation (April 2005). Telecommunications Prices in South Africa. An International Peer Group Comparison. Occasional Paper 1/2005.
- ¹³ Statistics South Africa. <http://www.statssa.gov.za/PublicationsHTML/P02113rdQuarter2008/html/P02113rdQuarter2008.html> Accessed 23 January 2008
- ¹⁴ Digital Lifestyles Predictor Studies, BMI-Techknowledge Group News release; <http://www.bmi-t.co.za/bmi/Content/News-archives/news%20-%20latest.htm#DLP>; See also <http://www.webaddict.co.za/2008/06/12/mxit-vs-facebook-use-age-south-africa/>
- ¹⁵ Equivalent at the time of the announcement in Feb 2007 to about USD\$ 137.4 million. Conversion rates:
1USD=ZAR7.6@20/07/08; 1USD=ZAR6.8 @ 01/01/2008; 1USD=ZAR7.1 @ 01/01/2007; 1USD=ZAR6.3 @ 01/01/2006
- ¹⁶ KPMG (2007). DAC – Public Library Funding Model. Phase 2 - Status Quo Report (Report 2 of 3). Prepared for the Department of Arts and Culture., South Africa. Undertaken by KPMG and Jacaranda Intellectual Property Business Consultants. <http://www.dac.gov.za/projects/nclis.htm>
- ¹⁷ USAASA press conference presentation, 4 December 2007. Provided by USAASA. See also <http://www.usaasa.org.za/index.php?q=servicecenters,1,CommunityTelecentres> for a list of the locations of existing telecenters.
- ¹⁸ Presentation made by African Response to the Government Communication Information Service (GCIS) (15 March 2007), on “An evaluation of the sustainability of integrated service delivery in 25 Multi-Purpose Community Centres. Presentation provided by GCIS to the research team.
- ¹⁹ Keri-Arokium Gerber (July 2007). *Audit of Telecentres, Cyberlabs and Multipurpose Community Centers in Kwazulu Natal*. Prepared for the Department of Economic Development, Kwazulu Natal, with funding provided by the European Union.
- ²⁰ *ibid*; African response report, March 2007
- ²¹ *ibid*
- ²² 2006 data.
- ²³ Y-Centers are described as “multi-purpose recreational venues for young people” (Annual report, 2006); loveLife’s presence at clinics varies, but often is little more than a room where the program offers youth-friendly counseling; partnering schools are schools that allow loveLife to implement its program at the school at specific times; franchises are community organizations involved in HIV/AIDS prevention and youth activities that have become part of the loveLife network; outlets are partnerships with the Department of Social Development aimed at reaching rural and marginalized communities. (*ibid.*)
- ²⁴ The number of resource centers is according to website data (www.noahorphans.org.za). Noah’s arks are established in stages, with the first being getting community leaders to take responsibility for the OVCs in the community. Stage 3 is the establishment of the resource center, which accommodates OVCs on a daily basis, offering them meals, homework supervision, access to counseling, and various life skills and educational programs.
- ²⁵ The Starfish Mentoring and Training Programme capacitates CBOs to deliver a range of basic services to OVCs.

Chapter 31

Public Access ICT in Namibia

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EXECUTIVE SUMMARY

Introduction

Namibia is an independent republic located along the Atlantic coast of the far southwestern reaches of Africa. It is bordered to the north by Angola, to the northeast by Zambia, to the east by Botswana, to the south by South Africa, and to the west by the Atlantic Ocean. The land area covers 318,260 square miles is divided among 13 provincial regions, and has a population of about 2.1 million. Namibia has the second lowest population density of any country in the world. Eighty percent of the population is Christian, and the rest observe indigenous faiths. Seven percent of the people speak English, which is the official language, while 60% speak Afrikaans, and 32% speak German.

Overall, access to information and communication technologies (ICTs) is quite limited throughout the nation. A recent survey indicates that the Internet is accessed mainly at the workplace or in

schools. From a total of 854 households surveyed, only 51 had household members who had used the Internet, and of those people, only 3.9% had an email address. Internet access is not available to many people because of the limited number of fixed landlines, the high cost of Internet access, the lack of electricity, and the lack of bandwidth.

The lack of certainty in the regulatory environment has been a limiting factor in the availability of information access; there is a need for service-neutral and technology-neutral licenses. The policy environment is in flux and the existing ICT policy is being updated. The telecommunications and regulatory environment is a monopoly held by two mobile operators, and they offer no provision for VoIP (Voice over Internet Protocol) to the public. There is a need for better coordination among government agencies regarding ICT roll out to ensure the optimal use of the limited resources. The government has mandated that all 107 constituency offices are to be equipped with ICTs. The proposed Community Information Resource Centers will require shared use of the fiber-optic backbone already in these offices, as

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well as alternative power sources for those venues not on the power grid.

This study was designed to examine the public access to information and communication resources in Namibia, with a specific focus on such areas of interest as public libraries and schools, understanding the information needs of underserved communities, public access to information and communication venues, and the role of ICTs.

Namibia, which is classified as a lower-middle income country with a GDP of 4.1%,¹ has a particularly low population of 2.1 million, which translates into a population density of about 2.5 people per sq km. Overall, ICT access is very limited throughout the country, and the available ICTs in the schools are provided largely by SchoolNet Namibia.

Methodology

This study was conducted in Namibia in 2008 and consisted of two phases. The first phase combined a literature review and an examination of the limited available source data. The researchers conducted interviews with key decision makers, held group discussions, and visited readily accessible venues in Windhoek and Gobabis.

The second phase was a field survey of two public libraries, three schools, two higher education institutions, and five commercial Internet cafés. The venue selections were based on their accessibility to the user base in each community, the availability of ICTs in the venues, and the presumption that each venue would have more than twenty users each day. The limited availability of public ICT access points, other than the SchoolNet Namibia sites, produced a very limited sample.

Findings

There is a widespread, strong demand in Namibia for ICTs, driven to some degree by the huge distances between the communities and the geographic isolation of large parts of the population.

A huge digital divide separates those people who live in urban versus non-urban environments. The limited distribution of a reliable and inexpensive electrical power grid is a particular challenge nationwide, and alternative energy sources are in use or being considered to resolve the issue. Solar power and wind energy are both under consideration by MTC (the mobile telecommunications provider) and SchoolNet Namibia.

The study results revealed a distinct difference between the usage patterns of those users over and under 25 years of age. Most users over the age of 25 use the Internet for work and to maintain contact with their business colleagues. That age group typically sees the Internet as an information source and spends very little time using it as an entertainment medium. Many of the users below the age of 25 have access to ICTs free of charge in the school system. They commonly use mobile services to interact with their social networks, communicate through chat sites, and make appointments with one another by using text messaging. This younger population set generally uses the Internet for email, but most prefer social network sites where messages are sent across the network rather than to individuals. The Internet is often used to access music and films, and mostly through pirated means. The researchers observed very few gender differences with regard to ICT usage.

The researchers concluded that there is a strong need for better coordination among the government departments and agencies regarding ICT roll out to ensure the optimal application of the limited resources. The government has designated that all of its 107 constituency offices throughout the nation's 13 regions should be equipped with ICTs. The proposed Community Information Resource Centers will require shared use of the fiber-optic backbone that already reaches all of those offices, and alternative power sources need to be provided for those venues not on the power grid.

The following five recommendations were developed:

- The introduction of ICTs into libraries represents a significant opportunity because only two libraries in the country are presently connected to the Internet.
- An extensive ICT-literacy campaign is required in the government, as well among the broader population. ICT training needs to be included more prominently in the training of teachers and librarians, as well as civil servants.
- A situational analysis is needed to identify all of the existing community access points (clinics, libraries, schools, recreational centers, craft centers, etc.) to identify the applicable best practice.
- E-government services need to be identified and implemented. Government web-sites must become more functional.
- More research is needed to assess the availability of content in local languages – the extent to which this content is required, the likely levels of demand, and the type of content that could be developed for future use in libraries, schools, and youth development centers.

COUNTRY OVERVIEW

Introduction

Namibia is an independent republic on the Atlantic coast of the far southwestern reaches of Africa where it is bisected laterally by the Tropic of Capricorn. The region had been a German colony called South-West Africa until it was occupied by the Union of South Africa during the First World War. South Africa continued to occupy the colony until after the Second World War, when it annexed the territory. The territory remained occupied until 1990, when South Africa withdrew its similar occupation of Angola. After South Africa withdrew, the region experienced extensive armed conflicts, and in 1966, the Marxist South-West Africa People's Organization (SWAPO) launched a war

of independence, and the area was soon renamed Namibia. It was not until 1988 that South Africa agreed to end its administration in accordance with a United Nations peace plan for the entire region.

In 1990, the former colony emerged as the independent Republic of Namibia, with Windhoek as the capital, and the nation has been governed by SWAPO since then. The country functions under a representative democratic government with an elected bicameral legislative parliament and a national assembly. The president serves for a five-year term. Hifikepunye Pohamba was elected president in 2004. Namibia is a democratic multiparty republic with an independent judiciary. The country is divided into 13 regions and 107 constituencies, and the regions are managed through 13 regional councils.

As in South Africa, the legacy of apartheid left the country with huge discrepancies along racial lines. The black population, which included the black and mixed-race communities, was denied access to adequate education, lived in areas where the infrastructure (water and electricity) was minimal, and roads were generally in poor condition. This segment of the population had to travel long distances to reach employment in the cities and towns. More recently, the situation has improved, but there are still wide discrepancies in income, access to education, living standards, and career-advancement opportunities, often compounded by the lack of education and sufficient role models. Namibia stands among the nations with a very high GINI Coefficient (74.3%), which places it in 126th place in the world.²

Black Africans comprise the majority of the national population at 87.5% and represent a number of ethnic groups, most importantly the Oshiwambo, Nama/Damara, Herero, Lozi, Kwangali, and Tswana. The White population is estimated to number only 6% of the total, while the other 6.5% are of mixed origins.

Namibia is bordered to the north by Angola, to the northeast by Zambia, to the east by Botswana, to the south by South Africa, and to the west by

the Atlantic Ocean. The land area covers 318,260 square miles and is divided administratively into 13 provincial regions. The population numbers just over 2.1 million, which gives Namibia the second lowest population density of any country in the world after Mongolia. Eighty percent of the population is Christian and the rest observe indigenous faiths. Seven percent of the people speak English, which is the official language, while 60% speak Afrikaans and 32% speak German. English has become the language of choice for the younger generation.

While Namibia has an extensive agriculture, the country perhaps is best known as the world's largest producer of diamonds, and the revenue from diamond mining drives the economy. Namibia is classified as a lower-middle income country with a GDP of 4.1%.³ There are five different but overlapping geographic areas that range from desert dunes and gravel plains to the central escarpment, which has the only arable land in the country (less than 1% of the total area).⁴

Due largely to the arid and semi-arid nature of so much of the land area, nearly a third of the population lives in the larger towns of Windhoek, Swakopmund, and Walvis Bay, and about two-thirds live in the smaller towns in the northern part of the country. The national government differentiates among cities, towns, and villages by noting that cities provide their own municipal services, including water, electricity, sewerage, and roads. Towns might provide certain services, but not be able to develop a road network, and villages would not be able to provide any of the services.

A traditional definition of urban and rural areas is not appropriate in the Namibian context, and resources such as community centers, schools, clinics, and libraries are almost exclusively concentrated within the cities, towns, and villages. For example, more than 50% of all the 720 schools can be found in the northern regions.

Overall, access to information and communication technologies (ICTs) is quite limited through-

out Namibia. One recent survey indicates that the Internet is accessed mainly at the workplace or in schools. From a total of 854 households surveyed, only 51 had household members who had used the Internet, and of those people, only 3.9% had an email address. Internet access is not available to many people because of the limited number of fixed landlines, the high cost of Internet access, the lack of reliable electricity, and the lack of bandwidth.

However, mobile telephone usage is high, and 65% of the country has coverage. That number increases to 100% along all the arterial roads. Mobile telecommunication is thought to be the technology where the most significant advances in ICT access can be achieved. A significant means of communication can be found through the publication of text messages in local newspapers. This service is offered free of charge to readers.

Namibia was selected to participate in this international study to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, how they realize successes, and how they meet the needs of underserved communities and groups.

METHODOLOGY

Team Qualifications

The research team for the Namibian study was composed of two key researchers who have a wide range of ICT experience, and who were supported by a small team of field researchers to assist in the field survey work. As one of the key researchers, Tina James has more than 25 years of experience related to the use and application of ICTs in Africa. She has worked across a range projects in

ICT policy and strategy development, technology management, foresighting, and roadmapping. She worked extensively on ICT projects that dealt with telecenters and school networking and support systems for small and medium businesses.

Milton Louw collaborated with Tina James and was the other key researcher on this project. He has been involved with Internet and ICT activities since 1992, when he was responsible for Information and Communication at the Namibia Chamber of Commerce and Industry. He serves as the Secretary for the ICT Alliance and also serves on the Secretariat of the Cabinet Taskforce on ICT.

Literature Review

The researchers determined that very little research material exists with regards to ICTs in Namibia, with only about 15 or 20 documents available for the review in addition to what little background information was obtained from online searches.

Venue Selection

Very few ICT-based public access points exist in Namibia, except for those installed in schools by SchoolNet Namibia. The SchoolNet initiative provides access and support to rural and remotely located schools, but most of those schools do not provide ICT access to non-students. The ICT services provided by SchoolNet fall into two categories. Some are established in individual schools, and others serve as community centers in partnership with other stakeholders. For that reason, schools were included in the Namibian survey.

The national library in Windhoek, and the community library at Katatura, an outlying area on the outskirts of Windhoek, are the only two libraries in the country that have ICT access. Both facilities were included in the survey.

The researchers initially selected four types of venues for the study: 1) Public libraries and the

libraries operated by international agencies such as the UNDP and the US Information Services (USIS), 2) Schools and educational institutions, 3) Community centers (CIRCs), and 4) Internet cafés, including the commercial and post office venues. After these venue types were selected, the following communities were selected to ensure a wide representation of venues throughout the country: 1) Windhoek, the capital city, 2) Gobabis and Okahandja, which are small towns within a 200-km radius of Windhoek, 3) Ondangwa in the northern part of Namibia, and 4) Rehoboth, about 90 km south of Windhoek.

Inequity Variables

Several social and economic inequity variables were observed during the course of this study. The researchers found that they impact the ability of the public to use the ICT access points in Namibia. The most important of the variables are socio-economic status and the user educational level. Notably, the legacy of apartheid left huge discrepancies in the socio-economic conditions that still persist along racial lines throughout the country.

The enrolment rates in the primary schools are estimated to be 99.3% with a 76% completion rate for males and 85% for females. Girls outnumber boys in both primary and secondary education. The secondary school enrolment rate is estimated to be 56.3%. The literacy rate among adults has increased rapidly in recent years, and 83.5% of the female population over the age of 15 is regarded as literate compared to men at 86.8%.⁵ This compares well with the 1990 statistics that listed the rate at 74.9%.⁶ Nevertheless, the ICT literacy is very low, and is hampered to a significant degree by the lack of vocabulary for ICTs in Afrikaans, which is the language of choice for 60% of the population.

A census conducted in 2001 indicated that Namibia has a relatively youthful population, with 39% of the population less than 15 years of age

Table 1. Overview of the User Survey Responses

	Public Libraries	SchoolNets	Internet Cafés	Educational Institutions
Number of urban venues surveyed	2	1	1	-
Number of semi-urban venues surveyed	-	2	4	2
Number of respondents in urban venues	50	37	5	-
Number of respondents in semi-urban venues	-	25	17	31

and only 7% over the age of 60.⁷ Of the people interviewed for this study, 93% were under the age of 35. As of 2004, women made up 50.4% of the total population and 44% of the total labor force, which was estimated to be about one million. Forty-seven percent of the venue users observed in this research study were female.

Previously, the location of service-delivery facilities was closely connected to the locations of specific racial groups. Distinct differences were noted between the urban and non-urban environments in terms of access to such basic necessities as water and electricity, and to social service points, such as clinics.

During apartheid, large numbers of the Black population were forced to live far from urban areas but near enough to provide a labor force for the cities. Other members of the Black population were forced into rural areas. These conditions led to the emphasis the researchers for this study placed on the underserved areas.

Twenty-one distinct languages are commonly spoken in Namibia, although English is the principal language used in schools and the business community. Most Namibians are conversant in Afrikaans.

Data Collection

During the first phase of this study, more than thirty individuals were interviewed, either in person or by telephone. The researchers also conducted 19 site visits during that first phase. During the second phase of the study, the researchers conducted a

series of user surveys over a two-week period in June and July of 2008, using two types of questionnaires for users and operators. The questionnaires were customized to meet the local conditions.

Because of the size of the country, a team of locally based fieldworkers was deployed, and the venues were notified of the visits and the surveys in advance. The researchers visited the UN libraries and Internet cafés several times, both in the morning and afternoon, to assess the number and types of venue users. Several problems were encountered during the course of the survey, the most difficult being that the respondents were not prepared to allocate time to be interviewed. The survey concept is relatively unknown to most people in Namibia, and a number of the users expressed concern that their opportunity to use the ICTs might be limited if they assisted in the survey.

Data collection and analyses were performed centrally. In total, 165 users were surveyed, in addition to the operators, at each of the venues.

OVERALL COUNTRY ASSESSMENT

ICT access is very limited throughout the country, and there has been only a minimal effort with regard to providing information services. Correspondingly, there is very little evidence of any active effort to implement e-government services, despite that being a component of the government's stated initiatives. This lack of effort to implement e-government services may be partially attributable to the low levels of ICT skills

and technological capacity within the government itself. Most content is produced in English, with only a limited amount of content available in local languages.

Public Access to Information

A recent household survey indicates that the Internet is most often accessed at the workplace or through schools.⁸ Of a total of 854 households surveyed, only 51 had household members who had used the Internet, and of those people, only 3.9% had an email address. Another government-sponsored study found that more than 94% of the population had access to radio broadcasts, 70% had access to mobile phones, 13% had access to computers, and only 8.8% had access to the Internet.

Internet access is unavailable to many people because of the limited number of fixed landlines, the high cost of Internet access (despite slowly decreasing prices), the lack of reliable electricity, and the lack of bandwidth. Nevertheless, the Namibian population is characterized by high mobile telephone usage, driven by the very extensive geographic coverage. More than 65% of the country is covered, and that number increases to 100% along all of the arterial roads. Mobile telecommunication is perceived to be the area where the most significant advances in ICT access can be made in Namibia. A significant means of communication can be found through the publication of text messages in local newspapers. This service is offered free of charge to readers.

There is no significant amount of local content available through ICTs, regardless of the government's claims, and the government websites are not regularly updated, often do not work, and the information required is often not available.

Access, Capacity, Environment, and the Inequity Environment

There is a widespread demand for the use of ICTs in Namibia, especially given the huge distances and geographic isolation of large areas of the population. Namibians over the age of 25 will use ICTs, and, more specifically, they will use Internet applications primarily as a part of their employment. Most people under the age of 25 are using ICTs for personal and social interaction with their peers, as well as for personal entertainment (movies, music, and games).

The high level of literacy and formal education means that most Namibians, once given access, would be able to make use of information sources with very little assistance. The level of technological skills, from computer engineers to public school graduates, is quite high. This outcome has primarily been the result of the investment in human capital by the mining and financial services sectors.

Although there is a widespread need for access to ICTs, reliable electrical power sources beyond the more heavily populated communities are problematic. A few alternative energy sources, such as solar power and wind energy, are in use or are being investigated by MTC (the mobile operator) and SchoolNet Namibia. The extent of the problem is illustrated by the fact that only 6.1% of rural households now have access to electricity. In urban areas, access to fixed-line telephony is the major limitation.

Such a large proportion of people in the country under the age of 15 points to the need to focus on this target group, and particularly on the use of ICTs to improve the quality of education. The government's stated intention is to introduce ICTs into schools, and a budget has been allocated for that purpose. This investment points to a possible future need to increase the number of multi-purpose community centers, or to update the existing facilities with ICT access. The cabinet

members recognize this need and a directive has been given to a newly formed ICT taskforce to audit the programs that are now in place in order to recommend ways to improve collaboration across the various government efforts.

Information Needs of the Underserved Communities

According to a government study undertaken in 2007,⁹ the general public has an urgent need to access information with specific regard to crime, corruption, health care, HIV/AIDS, employment opportunities, human rights and violence against women and children, poverty reduction, and agriculture.

The present research found that more than 50% of the survey respondents were searching for education-related material and work-related information, such as job opportunities and interview techniques. However, very little information of this type of is available to them, and the need for this information was especially important to the younger user base at these facilities. There have been various programs to provide employment search services from various Ministries, most notably the Ministry of Labor, but none of the government agencies thus far have been able to keep their online information up to date.

Economic, Policy, and Regulatory Environment

A new Ministry of Information and Communication Technology was created in 2008 with the specific task of overseeing the creation of a body or commission that would allow Namibia to apply ICTs as tools to accelerate socio-economic development. The Ministry will be responsible for developing policy and regulating the business being accomplished in ICTs and related sectors, ensuring access to all its citizens, and protecting civil liberties. This new Ministry aims to focus on three areas (possibly through the creation

of specific agencies): 1) The Namibian Communications Commission, which will deal with all regulatory aspects of communication, 2) the Namibian Computer Agency, which will promote the accelerated dissemination of information technologies in every socio-economic sphere, and 3) the Central Informatics Body to oversee the implementation of information technologies in government and to ensure that civil servants are technologically literate.

The present telecommunications and regulatory environment in Namibia is challenging, with a monopoly in fixed line telephony, two mobile service providers, and no provision for the use of VoIP (Voice over Internet Protocol) by the public. VoIP of itself is not illegal, only the reselling of such a service on a commercial basis is illegal. The lack of certainty in the regulatory environment has been an ongoing limiting factor. There is a need for service-neutral and technology-neutral licenses.

The policy environment is in flux, and the existing ICT policy was being updated in 2008. Several working groups were established to draw up recommendations for the development of an ICT strategy. A taskforce was appointed and identified two activities that are considered to be the most critical in the near term: 1) public access to information, and 2) the improved administration of the .na domain. There is also an increased emphasis on the need to develop ICT skills among the general population, especially among the public servants.

The creation of a Ministry of ICT, and the provision of ICT services to the public, are positive steps towards improved access and service delivery. The Ministry prepared a strategic plan and was expected unveil that plan sometime in late 2008, but some concerns were noted in the 2008 budget prepared by the Minister of Finance. Nearly US\$131,000 was allocated for the creation of an ICT policy in 2007, but less than US\$26,300 was allocated for its implementation.

The government is set to spend more than US\$314 million over the five-year period from

2006 to 2011 to upgrade the education sector through an initiative called the Education and Training Sector Improvement Program (ETSIP). This plan includes upgrading teacher and student skills in ICTs, but it has been said to be insufficient in the near term. The ETSIP includes the Tech/Na! component that aims to roll out ICTs in schools. As of June 2008, about forty schools were connected.¹⁰ The roll out has, however, been slow, and there have been reports of problems in the delivery of computers to schools. This issue may point to a potential capacity problem in being able to deliver the materials. The Tech/Na! includes secondary schools in the first phase, but the intention is to roll out ICTs to all schools by the end of the second phase. Additionally, all libraries also are included as part of the second phase.

Existing Collaborative Practices Across Venues and Future Opportunities

The creation of Edunet, an Internet service provider (ISP) specifically aimed towards educational institutions, is an example of collaboration that has worked well. This initiative was created in 2003 to provide subsidized Internet access and is directed by Telecom Namibia, SchoolNet Namibia, and the XNet Development Trust. The initiative is an integral part of the Tech/Na! (ICT in Education) initiative of the Ministry of Education.

SchoolNet Namibia has established collaborative relationships with schools and a few community centers in which they provide technical support, training, hardware, and software. Various international donors have been collaborating with the Namibian government to provide ICTs with the support of other participants, such as the Millennium Challenge Account, USAID, Finland, Sida (Sweden), UNESCO, Book Aid International, and the Luxembourg Agency for Development Cooperation.

At this time, there are few institutional opportunities beyond schools and, to a more limited extent,

in libraries. The government's intention to roll out Community Information Resource Centers in all regions of the country creates an opportunity to share scarce resources within specific geographic locations. As a result, potential areas for collaboration include shared training, first-level technical support, and the sharing of content development in a particular region.

Buzz Factor

The penetration of mobile telephony is a critically important element in such a sparsely populated country, and in the localities where it has been introduced, it has been welcomed enthusiastically, especially by the nation's young population. Some schools lack sufficient water and sometimes have no electricity, but have been able to gain the benefits of wireless technology when they have access to solar power and diesel generators. Base stations have been set up in parts of the northern reaches of Namibia specifically for this purpose.

Legitimate Use

The nation's young people see social networks and chat sites as necessary for their future. A few such people interviewed in the user survey indicated they would think twice before accepting a job with a company that did not allow access to social networking sites. The boundaries between trivial and legitimate use are becoming blurred and can be seen in the business community where many users are joining networks to share ideas and opportunities, to increase networking and social interactions such as birthday reminders, and to exchange personal information.

Shifting Media Landscape

Mobile telephony has been the technology with the most pervasive impact, even in poor communities, but its potential as a content-development tool has not been exploited, and there are no plans at this

time to use the technology to provide government services.

The MXit message exchange program for mobile phones (GPRS/ 3G) has become a huge success among the Namibian youth. The technology allows mobile users, at an extremely low cost of less than US\$0.001 per minute, to chat with people on their computers and to communicate with other MXit users on their mobile units from anywhere in the world. The present system accommodates messages of up to 2,000 characters.

VENUE ASSESSMENT

The four types of public information access points selected for inclusion in this study were public libraries, SchoolNets, commercial Internet cafés, and educational institutions.

Public Libraries

Namibia has 56 functional community libraries, and 3 more were scheduled to open by the end of 2008. Most libraries are small, with only one room to accommodate ICTs, shelves, and a service counter, and plans are underway to build regional libraries with more space. Computers are available in 21 libraries, but only 5 of those libraries have Internet access. Ten more libraries are scheduled to receive computers by the end of the 2008-2009 fiscal year, and another ten libraries are to be added each subsequent year until 2010-2011, and will be provided with computers. These computers generally are provided for administrative access, but librarians may also elect to provide access to the public.¹¹

The National Library in Windhoek has seven computers for local and Internet access, although the hardware is very old and was scheduled to be replaced by the end of 2008. In addition, there are about 17 specialty libraries and resource centers for teachers, and about 3 for adult education, but these are not available for broader public access.

A community library based in the less-well-developed area of Greenwell Matongo in Windhoek is being renovated to contain a computer laboratory with ten computers.

The researchers visited four libraries, but user surveys could only be conducted at two of them. The surveys revealed the following:

- Younger people, such as schoolchildren, students, and job seekers, generally make up the largest group of library users, with 89% of the users between 15 and 35 years of age. The remaining 11% are under the age of fifteen. A review of the racial divide among the users revealed that 98% of the users were Black Africans, and the remaining 2% were White.
- Most of the users (52%) visit the library daily, and another 26% used the library about once a week.
- The most common uses for the Internet in the National library are web browsing (47%) and emails (35%). Many library users (20.6%) were found to be casually passing time and were not using the computers for any specific purpose. Another 5% were using the computers to play games.
- Libraries tend to be placed in the central business districts of the smaller towns. Although Namibian towns generally are not very large, individuals may still have to travel longer distances to reach libraries, either by taxi or by walking.
- The few libraries that offer Internet access do so free of charge, and the library membership fees also are quite low.
- Libraries play a significant role as places for people to study, and are commonly used by students. For example, the National Library in Windhoek has small meeting rooms and private facilities where people can study, and the library also provides desks in the main library areas. In contrast, the Greenwell Matongo Community

Library consists of a single large room that houses its book collection and its two computers, but has provided several rows of seating for schoolchildren to read and study. The library is well used despite being hot and cramped.

- Most of the population considers other government services to be more important than simply providing information via libraries. Namibia does not have a strong reading culture, although the increased literacy rate has produced a more positive attitude toward libraries.
- A more widespread introduction of ICTs will likely require additional funding to accommodate larger rooms, electrification and wiring, and greater security to counter the higher risk of theft of electronic items.

SchoolNets

The largest number of public information access points currently in place is in schools and are the result of the activities of SchoolNet Namibia. Nearly 90% of all school installations are located in the four Northern regions, and those regions are seen as the most neglected and disadvantaged areas in the country. That part of the country was a war zone before Namibia gained Independence.

Out of a total of about 1,626 schools in all of Namibia, 700 have access to ICTs, and of those, 280 now have consistent Internet access available to the students and teachers. About 40 of those schools (20% of the total) offer ICT access to the local communities. SchoolNet Namibia has been providing technical support and 24/7 Internet access to the schools, and also provides a free national helpdesk. Wireless technology, in combination with solar power and diesel generators, has been provided to those schools that lack water and electricity. A more extensive roll out of ICTs to other schools is scheduled to take place through the Tech/Na! initiative and the Ministry

of Education. SchoolNet Namibia remains the largest provider of ICTs in the country.

Most SchoolNet installations are in the classrooms of schools that have electricity and telephone service. The SchoolNet laboratories consist of five to twenty refurbished computers with all the hardware necessary to accommodate Internet access. The computer classes are managed by the students themselves and supervised by an assigned teacher. Only open-source software is used, and the hardware is often outdated. A typical system might be equipped with a Pentium 3 processor, and was used as the result of an early decision made by SchoolNet. The maintenance and equipment upgrades are managed by students who have been trained by SchoolNet staff. The students are not charged for using the facilities, but the schools pay an initial installation fee followed by monthly support fees.

SchoolNet offices operate largely with volunteers from the community who are provided with online training and continuing on-the-job training. These volunteers assist schools in servicing and maintaining the equipment, and volunteers also are used to train the school staff and the students.

SchoolNet also provides relevant content to students and educators through its Edukar educational software suite, which includes a typing tutor, Wikipedia, games, and books. SchoolNet Namibia promotes the use of free and open-source software solutions.

The user surveys revealed the following about the SchoolNet initiative:

- The SchoolNet Namibia Headquarters in Katutura (Windhoek) is the busiest of all public access points.
- The users in the SchoolNet venues focus mostly on email (35%) and web browsing (45%), although the web browsing is used primarily for researching schoolwork.
- Most users frequent the venue on a regular basis, and 47% use the facilities daily. It is

presumed that most of them live in close proximity to the center.

- When asked what the greatest barriers were, 31% of the respondents said that there were not enough services available, while 32% said the operating hours were an issue.
- The SchoolNet venues are highly regarded; most students consider it a privilege to be permitted use of these facilities. Some students have been known to skip their regular classes to make use of the venue.

Internet Cafés

The commercial provision of Internet services is flourishing in Namibia. Most major urban areas have several Internet cafés that cater to users who want to browse the web, access email, and play games. “LAN-ing” is the term applied to gaming over a network, and the practice has become so popular it has even fostered regular competitions.

The post office and Telecom also provide Internet access at some of their venues. Quite a few banks have started providing small areas where clients can manage Internet banking. The hardware and software available in these facilities, unlike many of the SchoolNet installations, is state of the art, although the connection speeds are still very slow. Because these are commercial entities, a fee of approximately US\$4.00 is charged per hour, a rate not affordable to much of the population.

The legal framework governing information access, venues, and ICTs is pending, and the Information and Communication Bill is a work in process. As for the policy framework, the government has clearly indicated that Internet cafés will be allowed to provide additional services such as VoIP.

The researchers visited eight Internet cafés but only five of those were included in the survey. Four of the five were commercial sites in Windhoek, three were in Rehoboth, and the other one was in

Okahandja. The survey results obtained at those venues revealed the following:

- The Windhoek Post Office provides three Internet access points, but they do not appear to be well used. Reportedly, no other post offices in the country offer ICT access.
- Most of the Internet café users are not local residents, but were found to be visitors from other countries. Most were using the Internet for browsing (45%) and email (36%). The users are generally older people, perhaps because the surveys were taken at a time of day when many younger people were in school, or the user fees were so high that they precluded use by younger people. About half of the users interviewed at the time the researchers visited the venues were older than 25, but fewer than 30% of all of the users interviewed were over 25 years of age.
- The venues generally had few staff members, averaging only about one staff member for each five computers, but all seemed to be technologically well trained.
- The frequency of the visits was much lower than at any of the other venues, and fewer than 10% of the users visited the venues daily. The respondents described the type of service they required was adequate, with only 14% wanting additional services.
- The most common complaint was that some venues do not allow the use of flash drives.

Educational Institutions

Two educational venues were included in the research, and both are equipped for ICT access, but permit the public very little opportunity for access. The Institute of Information Technology Windhoek provides IT training to students, most of whom come from higher income backgrounds. The facility has more than thirty terminals with

access to the Internet. The facility also serves as an ICDL¹² testing center.

The Namibia Institute for Educational Development (NIED) is located two kilometers from the small town of Okahandja and has an educational building complex for teachers, trainers, and curriculum developers. A site visit showed that the library is well stocked with books, but the Internet connection is erratic. The venue is very difficult to access by public transport and has very few users from outside its community.

SUCCESS FACTORS AND RECOMMENDATIONS

This research study has confirmed that there is little ICT activity in Namibia beyond the extensive services provided by SchoolNet Namibia. There has been positive movement in the ICT policy environment, and the creation of a Ministry of ICT should contribute towards stronger collaboration between the government ministries, NGOs working in the ICT training/provision arena, and the private sector.

Success Factors

The roll out of ICTs to schools appears to have been the most successful of the few technological projects introduced in Namibia, despite the difficulties of dial-up access, limited available bandwidth, long travel distances to provide technical support, and the difficulties of providing reliable 24/7 Internet access.

There is a strong need for better coordination among the government departments regarding ICT roll out in order to ensure the optimum use of the limited available resources. The government has designated that all of its 107 constituency offices nationwide should be equipped with ICTs. The proposed Community Information Resource Centers will require shared use of the fiber-optic backbone already extended to these constituency

offices, as well as alternative power sources for those venues that are not now on the power grid.

Recommendations

These five key recommendations can provide a positive impact on extending the reach and adoption of public ICT access points:

- Conduct a situational analysis to identify all of the existing community access points (clinics, libraries, schools, recreational centers, craft centers, etc.) and identify best practice.
- Introduce ICTs into more libraries. The result will present significant new opportunities because only a few libraries in the country are now connected to the Internet.
- Provide an extensive ICT literacy campaign to government workers and to the broader population. ICT training should be included more prominently in the training of teachers and librarians, as well as civil servants.
- Identify and implement e-government services, and make the government websites more functional.
- Conduct more research to assess the availability of content in local languages, the extent to which this is required, the likely levels of demand, and the type of content that could be developed for future use in libraries, schools, and youth development centers.

CONCLUSION

Namibia represents a challenging environment for the roll out and acceptance of ICTs and the provision of information services. The existing very low level of ICT penetration is both a challenge as well as an opportunity. The government effort to address ICTs through the Education Sector is laudable and should create an opportunity through

schools to extend ICT access to the largely youthful population of the country. Additionally, the efforts to place ICTs in libraries should have a positive impact on meeting the obvious nationwide demand for broader ICT access. The pervasive presence, even in poorer communities, of mobile telephony indicates the need for the government to strongly consider this technology for its future efforts to provide government information to the public.

ENDNOTES

- ¹ Source: National Planning Commission (2006 figures). http://www.npc.gov.na/publications/National_Accounts_1996_to_2006.pdf
- ² http://www.swivel.com/data_columns/spreadsheet/1748283?page=2. Accessed 9 April 2008
- ³ Source: National Planning Commission (2006 figures). http://www.npc.gov.na/publications/National_Accounts_1996_to_2006.pdf
- ⁴ <http://en.wikipedia.org/wiki/Namibia#geography> Accessed 21 August 2008
- ⁵ World Bank Group. Gender Stats. <http://devdata.worldbank.org/genderstats/gender->

<Rpt.asp?rpt=profile&cty=NAM,Namibia&hm=home> Accessed 8 April 2008

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- ⁷ Government of Namibia website, <http://www.grnnet.gov.na/>
- ⁸ Ministry of Information and Broadcasting (2007). Service Delivery Assessment Report. Prepared by the Multidisciplinary Research Centre of the University of Namibia.
- ⁹ Ibid.
- ¹⁰ Frederick Philander. Namibia: First Phase of ETSIP On Track. New Era, Windhoek 21 June 2007 <http://allafrica.com/stories/200706210651.html> Accessed 28 February 2008
- ¹¹ National Library of Namibia Website, list of all libraries <http://www.nln.gov.na/nis/address.html> Accessed 2 March 2008. Updated information provided through personal communication, 11 March 2008.
- ¹² International Computer Drivers' License certification for ICT literacy.

Chapter 32

Public Access ICT in Uganda

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EXECUTIVE SUMMARY

Uganda is a landlocked nation in central equatorial Africa, and for many years has been torn by tumultuous political, social, and economic turmoil. There have been violent armed conflicts and governmental shifts that were marked most prominently by the horrific reign of Idi Amin, who was ousted in 1980. Throughout history, epidemics and health issues have devastated the population, and Uganda still faces major problems with HIV/AIDS and sleeping sickness. Outbreaks of Ebola have devastated untold numbers of people.

The economy has recently shown signs of improving, and the GDP has reached a robust US\$240 billion in the past few years. Uganda still relies most heavily on an agricultural base that consumes 80% of the workforce. Coffee is the primary export. Some income is drawn from copper and cobalt mining and a very minor amount of light industry. The nation is bounded by Sudan to the north, Kenya to the east, the Republic of Congo to the west, and Tanzania and Rwanda to

the south. The 236,580 sq km landscape ranges from tropical rainforest to mountains that reach heights of 16,000 feet. A third of Uganda is covered by lakes, and Lake Victoria alone covers 20% of the country.

The diversity among the people of Uganda presents a unique case for equitably delivering information. Many ethnic groups are represented, with a few that are dominant, but most of the local languages are based on an oral heritage without a literature. There is an opportunity for public access venues with information and communication technologies (ICTs) to address the needs of these special groups while preserving their cultural and social values. Interestingly, national programs are unified through English and Swahili, making it easier to achieve harmony in capacity-building efforts.

Since 1986, the country has been undergoing a transformation, and the government deliberately began to shift the economy away from central control to encourage the private sector by implementing a number of restructuring strategies. During this process, the governmental powers

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were decentralized and parastatal entities began to be sold off to the private sector.

The government has announced its support for enabling and favoring a competitive environment for private investors. Consequently, the government enacted a number of specific policies and acts, including the Rural Communication Development Fund (RCDF) policy, the ICT policy, the National Libraries Act, the Electronic Media Act, the Press and Journalist Act, the Information Act, and many strategic directions, such as the Vision 2025 initiative. The result has done much to reflect the country's movement to foster development. But because of the high rates of poverty that limit much of the population, a large segment of the population remains isolated and has very limited access to information and social services. Many of those people are completely unaware of the benefits to be gained through ICTs, or the potential that ICTs hold for enhancing development and social change.

Uganda was selected to participate in this international study to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, how they realize successes, and how they meet the needs of underserved communities and groups.

This research, therefore, was directed especially towards public access to information and communication in Uganda, while specifically focusing on public libraries and the information needs of underserved communities. It is the first investigation of its kind in Uganda, and the findings of this research are expected to be useful to policy and decision makers in improving information access for underserved communities.

Methodology

The research team began the study with a literature review, examining documents in five key categories: 1) previous research work, 2) policies and regulatory controls, 3) Information Communication for Development (ICT4D) sources, 4) internal reports and publications, and 5) news articles and Internet websites. Sixty sources were examined from the Uganda Communication Commission (UCC), the Public Libraries Board, Makerere University Library, the Ministry of Gender and Labor, and the Uganda Bureau of Statistics. Other special reference resources came from bookshops, the Uganda AIDS Commission, the National Agricultural Advisory Services (NAADS) resource center, and other inequity support groups.

The five major types of venues that offer public access to information in Uganda are multi-purpose telecenters, public libraries, community libraries, post offices, and cybercafés. The scope of this study focused on the multi-purpose telecenters, public libraries, and community libraries, largely because these venues are involved in activities aimed at providing access to information among vulnerable and disadvantaged groups. Also, these three categories enjoy good public recognition as venues that are strengthening access to information for the public. Cybercafés and post offices were excluded because they lack coordination, and little reliable information was available about the estimated 25,400 cybercafés in Uganda.

However, before eliminating any venues from the study, the team made random visits to facilities in each of the five types of venues. During this preliminary effort, the team visited four multi-purpose telecenters, seven public libraries, three community libraries, three post offices, and four cybercafés.

Findings

This study revealed a public access landscape in Uganda that is driven largely by the private sector and where the government is only involved in public libraries and creating an enabling environment. The public access venues and centers are poorly documented with no dependable statistics to confirm accurately the condition of public venues nationwide. The capacity to use the public access centers (PACs) adequately is low. This reality is influenced by a lack of coordination and collaboration among the venues, illiteracy, and poor packaging of services based on community needs in a country that still faces the limitations of a heritage of oral communication. Many good policies have fallen short at implementation because of inadequate funds, which was symptomatic of PAC failures in both the private and public sectors.

It is indicative that PACs are useful and can be successful, and those that reflect success have services that meet community needs. These centers are built on partnerships and multi-stakeholder involvement. They focus on a key customer base, make strategic community outreach efforts, and have good management. Centers that had ICTs and radio broadcast components performed far better than those that did not.

Further research is needed to understand the actual numbers of public access venues, and it is equally important to conduct studies in content development and management areas.

COUNTRY OVERVIEW

Introduction

Uganda is a landlocked nation in the heart of equatorial Africa and takes its name from the centrally located Buganda Kingdom, which played a principal role in colonial administration and encompasses a portion of the southern part of the country, including the capital, Kampala.

The country is covered mostly by a plateau with a rim of mountains. The 236,580 sq km landscape ranges from tropical rainforest to mountains that reach heights of 16,000 feet. A third of Uganda is covered by lakes, and Lake Victoria alone covers 20% of the country. The lowest point is on Lake Albert at 621 meters, while the highest point is on Margherita Peak on Mount Stanley (Rwenzori) at 5,110 meters (World Factbook, 2007).

The area was a British colony from 1894 until granted independence in 1962, when it became a presidential republic, but before the arrival of the British, indigenous groups ruled the land. Uganda's 31.3 million residents represent 48 tribal groups with 40 recognized languages, although English is the official language. Eighty percent of the population lives in rural areas and most rely on family-based agriculture.

For many years, Uganda has experienced tumultuous political, social, and economic turmoil. There have been violent armed conflicts and governmental shifts that were marked most prominently by the horrific reign of Idi Amin, who was ousted in 1980. Throughout history, epidemics and health issues have devastated the population, and Uganda still faces major problems with HIV/AIDS and sleeping sickness. Outbreaks of Ebola have devastated untold numbers of people.

The economy has recently shown signs of improving, and the GDP reached a robust US\$240 billion in the past few years. Uganda still relies most heavily on an agricultural base that consumes 80% of the workforce, and coffee is the primary export. Some income is drawn from copper and cobalt mining, and a very minor amount of light industry. Uganda trades primarily with other African nations, and also trades, to a lesser degree, with many states in the European Union, including France, Germany, Belgium, and the Netherlands. Agriculture is the most important sector of the economy, employing over 80% of the work force. Coffee is the primary export.

According to the Economic Intelligence Unit, Uganda has substantial natural resources,

including fertile soils, regular rainfall, and sizeable mineral deposits of copper and cobalt. The country has large untapped reserves of both crude oil and natural gas. Of particular interest, the government recently struck an agreement with two companies that have begun to recover crude oil in the northern and western regions of the country. However, the details of the agreement and the ownership of the companies remain undisclosed and closely guarded.

Uganda has a population density of 133 persons per sq km and a total population of 31,367,972 million people (Uganda Bureau of Statistics, Statistical Abstract, 2008). The diversity among the people of Uganda presents a unique case for equitably delivering information. Many ethnic groups are represented, and a few are dominant, but most of the local languages lack a written literature, making them oral traditions. There is an opportunity for public access venues with ICTs to address the needs of these special groups, while preserving their cultural and social values. Interestingly, national programs are unified through English and Swahili, making it easier to achieve harmony in capacity-building efforts.

When this study was conducted, Yoweri K. Museveni was the president and the head of state. Ugandan presidents are elected to a five-year term and govern with the aid of a parliament that seats 309 members, 215 of whom are elected by universal suffrage. The remainder is composed of special interest groups, including the army, women, labor groups, youth, and the disabled.

The country is divided among 80 districts across four administrative regions - Central, Eastern, Northern, and Western. Each district is further divided into sub-districts, counties, parishes, and villages. The elected head of a district is chairman of the local council, but the president's representative in each district is the Resident District Commissioner (RDC).

The five most heavily populated cities include Kampala with 1.18 million people, Mbarara with 1.08 million, Wakiso with 0.9 million, Arua with

0.83 million, and Mukono with 0.79 million. The National Resistance Movement (NRM) dominates the political scene, is the leading political organization, and holds a large parliamentary majority. The Forum for Democratic Change (FDC) emerged from within the NRM and is now the largest opposition party. The main traditional political parties were the Democratic Party (DP) and the Uganda People's Congress (UPC), but both have been reduced to near-obscurity.

The 2002 Uganda Population and Housing Census (Uganda Bureau of Statistics, Kampala 2005) states that 13.3% of the population lives in urban communities, and 86.7% of the population lives in non-urban areas, where they exist primarily on family-oriented agriculture. Of the total population, 50.2% are 14 years old or younger, 47.6% are between 15 and 64 years old, and 2.2% are 65 years and older. There are 56 constitutionally recognized languages spoken in Uganda, but English is the official language, and Kiswahili is recognized as the national language (Government of Uganda, 1995).

English is taught in grade schools and is used in courts of law and by most newspapers and some radio broadcasts. Ganda or Luganda is the most widely used of the Niger-Congo languages and is preferred by native language publications in the capital and may be taught in school. The information in most public access venues is in English, but the language is little understood by a majority of the people.

The major ethnic groups are the Baganda (17.3%), Banyankore (9.8%), Basoga (8.6%), Bakiga (7.0%), Iteso (6.6%), Langi (6.2%), Acholi (4.8%), Bagisu (4.7%), Lugbar (4.3%), and other Ugandans (30.7%) (UBOS 2005). Most ethnic groups are marginalized and face cultural extinction.

According to the National Census of October 2002 (UBOS 2005), Christians make up 85.1% of Uganda's population. The Catholic Church has the largest number of adherents (41.9%), followed by the Anglican Church of Uganda, which a part

of the worldwide Anglican Communion (35.9%). Minor Christian groups constitute 7.1% of the population, and other marginal religions include Judaism, Hinduism, and Bahai. Islam is the second biggest religion with 12.1% of the population, but Islam faces widespread discrimination, and other of the beliefs also suffer some degree of discrimination.

METHODOLOGY

Team Qualifications

The research team was headed by three public access experts experienced in multipurpose telecenters, ICT development, ICT policies and management, and mass media. During the data collection process, the team was supported by two graduates with academic training in sociology and ICT engineering. The lead researcher has a Master's degree in management studies, post-graduate work in project planning, and a Bachelor of Science in agriculture, specializing in rural communication. The other two researchers had postgraduate work in project planning and management and human resource management, with an undergraduate degree in social sciences and mass communication, respectively. The lead researcher has nine years of experience in public access, while the other team members had an average experience of four years in public access.

Literature Review

During the literature review, the team examined documents in five major categories, including previous research, policies and acts, information and communication technologies for development (ICT4D) documents, internal reports, news articles and websites. A total of sixty documents were examined, and these were obtained from the government documentation centers, the Uganda Communications Commission (UCC), the Public

Libraries Board, the Makerere University Library, the Ministry of Gender and Labor, the Uganda Bureau of Statistics, and key websites. Other special reference resources were obtained from bookshops, the Uganda AIDS Commission, the Uganda National Agricultural Advisory Services (NAADS) headquarter resource center, and other inequity support non-government organizations (NGOs).

Venue Selection

The research identified five nationally distributed, major types of venues offering public access to information in Uganda. The five venues are the multipurpose telecenters, the public libraries, the community libraries, the post offices, and cybercafés. For this study, the researchers selected only the multipurpose telecenters, public libraries, and community libraries. These venues are largely involved in activities aimed at providing information access to the communities while maintaining a very strong social appreciation for the vulnerable and disadvantaged groups. In addition, these three categories of access are widely accepted by the public and recognized as infrastructure that supports access for everyone.

Cybercafés and post offices were excluded for the same reason: their support for disadvantaged groups was perceived to be poor. Additionally, cybercafés were excluded because they lack coordination, and there was no reliable information to document them or even to count their total number. Some estimates claim there may be as many as 25,400 cybercafés in the country. However, before eliminating any of the venues, the researchers paid random visits to facilities in each of the five types of venues. The researchers ultimately selected community telecenters, community libraries, and public libraries, but rejected cybercafés and post offices.

Inequity Variables

The research shows that 37.7% of the population lives in poverty, and 3.1% of the population between the ages of 15 and 64 are unemployed (UBOS, 2005/2006). Furthermore, more than 85% of the population lives on less than the equivalent of US\$1.00 per day and relies on seasonal employment. Access and real demand for education, social services, and public information is very low for a huge percentage of the people. Although the government-sponsored universal primary and secondary education system attempts to address the education gap, nothing is done with regard to the need for public information access. The high levels of poverty, low levels of education, and many other social and cultural issues reduce the interest and the enthusiasm among the underserved groups to use public access venues for information. Many have shown no interest in accessing the venues, in part, because of a poor reading culture, a lack of awareness of the role of information in development, or a lack of content, services, and infrastructure that is responsive to community specifics. Public access venues charge fees, which further isolates the poor population. The diversity in languages, culture, and social norms in the country makes it difficult to have a common conduit to disseminate information.

Education levels in Uganda have been categorized as those having a high level of education, a medium level, a low level, and the illiterates. The highly educated category includes university and tertiary institution graduates who commonly occupy the white-collar jobs. These people are seen to be able to afford and use the available venues and information. They have a greater opportunity to access ICTs by virtue of their exposure from the positions they occupy in society. The medium-well educated people are often secondary school dropouts who can read and write fluently. They are in a better position to access ICTs because they are literate, but their access is affected by their reduced income levels. Most of the people

in this category are either unemployed or underemployed. The lowest levels include people who have no more than the most basic education and people who have no formal education. The people in this last category cannot competently use ICT tools because they can hardly read or write. Of the 31% of the population that is illiterate, most live in rural areas (UBOS, 2005/2006). Because all ICT services are offered in English, these people are excluded by default. Collectively, these variations in educational levels greatly affect the use and access to ICT services provided by the venues.

For this study, the researchers introduced age-based categories as youth (18 to 30 years), adults (between 18 and 60 years), and the elderly (over 60 years). The ability of the population to access information at the venues has been largely affected by the differences in the age of individuals. The information age and the available information favors the youth who seem to be energetic, literate, are average earners, and, by virtue of their age, are targeted by most facilities offering ICT services. The adult population in Uganda constitutes the majority of the illiterates who have not benefited from the government initiatives. Most campaigns targeted towards ICT usage have not focused on this category of the population because most of the campaigns are school oriented, and thus exclude these adults. The adult category constitutes the majority of the working class, which has to divide its time between work and family. Their use of venues is almost entirely for social purposes.

Cultural barriers subject women to severe inequalities, and, until recently, the education of girls and the employment of women beyond the level of a servant was not seen as having any value. Thus, a vast majority of illiterate adults are women. Women are left with little chance of ICT access and usage, especially in rural communities where the norms and values still constitute barriers to women. Women also need secure places that will give them the flexibility to access and use ICTs while protecting them from sexual harassment.

Most female users see the presence of males in a venue as a threat.

Although most venue locations are seen as secure, ensuring acceptance from all classes of people in the community is not easy. The elite segments of the society often occupy administrative positions in the local government, and usually handle information that needs to be secured, but PACs do not offer this kind of security. Some facilities either have secured computers, or reserve times when access to the center is available only to a pre-established user base.

The PACs have a carefully developed client base that makes it nearly impossible to find a suitably located PAC for most of the general population, and it is not unusual for users to have to travel more than five kilometers to access PAC services. For a variety of reasons, PACs serve what are believed to be the “better” population segments, even in the non-urban areas, and this practice is not expected to improve to any significant degree in the foreseeable future.

Access to electricity, connectivity, and knowledgeable users continue to be very influential determinants in the minds of those who decide where PACs are to be located. These considerations are almost always unavailable in communities with disadvantaged groups, although those people comprise the largest part of the population.

DATA COLLECTION

The researchers visited the four major regions of the country (Central, Northern, Western, and Eastern) to gather data. Both primary and secondary data were identified and used. The collection methods were based on the Real Access framework (see Chapter 10) and the team also used checklists, questionnaires, a focus-group discussion guide, interview guides, and document-review checklists. Three sets of questionnaires were developed to target key respondents: telecenter and library staff, and users, and others who entered but did not use

the venues. This technique provided a clear picture of the information needs of the underserved in the community, the overall environment of PACs, and the role of ICTs in the community.

Throughout the process, 310 people were interviewed, 69 in the first phase and 241 in the second phase. The interviews were aimed at key respondents: subject matter experts, PAC users and non-users, managers, policy makers, and NGO leaders. At the same time, 30 group interviews or focus groups were conducted at different sites. Most of the focus-group discussions were conducted in the first phase of the research, and were helpful in obtaining feedback from inequity groups and groups that were more homogenous. Each group discussion had eight to twelve participants.

The researchers visited 76 sites, focusing on telecenters, community libraries, and public libraries. In addition, they visited regulatory agencies and groups, including public library boards, NGO PAC parent organizations, groups that deal with inequity variables, the UCC, the United Nations Education, Science, and Cultural Organization (UNESCO) national commission, the Ministry of Gender, the Makerere University faculty of Information and Librarianship, and networks supporting the PACs.

OVERALL COUNTRY ASSESSMENT

Public Access to Information

The Ugandan government recognizes the value of information in making decisions. One source noted, “The government recognizes that the effective participation of Uganda in development of, and in delivering benefits from, regional and international information systems and programs depends mainly on the existence of a strong national infrastructure.”

The National Libraries Policy 2006 states that the Ugandan people need information to acquire skills to improve their livelihood, know their rights

to demand services, and to actively participate in governance, prevent diseases, and support educational programs through widening education and learning opportunities to address poverty.

Nevertheless, this study revealed that the entire nation has only 30 public libraries, 36 community libraries, and 144 multi-purpose telecenters, without emphasizing that most people are unable to access information on their own. The community libraries and telecenters are largely driven by private interests, while at the same time, only thirty of the eighty districts have any form of the public access venues. According to Ikoja (2004) only twenty districts had public libraries in that year, which highlights how sluggish the infrastructure growth has been. The nation offers very few alternative options. According to the government's published policy, rural communities are supposed to use school libraries where they exist (Education Policy Review Commission, 1992). But the policy is faulty, first because the class sizes are limited, and, second, the schools in rural communities depend on PAC venues as their libraries. The problem is compounded because the PACs lack a common voice of advocacy.

The government policy makers have tried to close this gap by promoting the expansion of private sector telecommunication and technical services throughout the country. Despite these, and other similar initiatives, the public faces a host of challenges to real access when the communities lack electricity and have bad roads, high connectivity costs, and extremely poor economic conditions.

Internet use and penetration in Uganda are still very poor and are estimated to be available to no more than 7% of the country. Technological appropriation is low, and the country has done little to integrate technology as a means of meeting the needs of the population. The private sector has significantly improved the penetration of radio broadcasting, mobile telephony, and television networks. Still, the access and use of technology is still limited to highly literate groups in the

community. The cost of technological services and equipment are still high, although the government waived taxation on computer importation. Most people think the taxation waiver is limited because it does not cover the accessories. Connectivity still relies on satellite delivery, which also is very expensive.

Access, Capacity, Environment, and Inequity

The trained technological capacity nationwide in Uganda is clearly inadequate and insufficient to meet the needs of the public, particularly with the rapid developments in the telecommunications industry. The migration of so much of Uganda's labor force from non-urban to urban areas in search of employment opportunities is creating a rapid increase in the number of people who need access to information and ICTs. The venues are faced with the need to find skilled and consistent technical support, and they are often forced to use people who lack the necessary skills to serve the needs of the users. The problems will not be resolved quickly, and, again, one source has noted that the public seeks technology only when it is considered to benefit their lives directly, and most of people are not yet aware of the need to use ICTs (Ikoja, 2002).

Technologically supported and locally relevant content is both scarce and out of date, and there is no established or well-supported initiative to develop the content to meet the need. Other than MCTs (Multipurpose Community Telecenters) that have community radio broadcasts, the other venue types have not yet applied any technology to effectively touch the lives of the communities. With so little use of technology-based material to meet the local needs, many people can only resort to printed materials.

The deeply embedded social and culturally based inequities have maintained an unequal adaptation of technology, access, and usage. The older people quite firmly believe technologies are

the realm of the young people, especially the male population. They continue to believe with equal firmness that women are to remain in the home, serving family interests, and have no valid need to access or use PACs or ICTs.

Trust in technology varies widely, especially with the nature of the users. Confidence in technological equipment and usage is not very high among new users, and they often believe it is quite easy for a third party to access their information online. There is also a widely held perception that the equipment can adversely affect their health. A large number of people, most notably in non-urban areas, have avoided ICT tools, believing the equipment can damage their health, particularly their eyes.

The managers in some public libraries believe that ICTs have diverted users from using public libraries. But, overall, PACs are trusted venues for accessing information, especially with the realization that non-urban people have no alternative comparable source of information. Many believe that when the communities come to appreciate the value of the information, they will more quickly adopt the technology. Most are not aware of the immediate benefits they can gain from information, such as networking, email, healthcare, new government programs, improved modern agriculture, digitized information, blogs, and wikis.

Economic, Policy, and Regulatory Environment

About 87% of Uganda's huge population lives in rural areas, and almost all depend on agrarian activities for their livelihood. More than 37.7% of the population lives below the national poverty line, and 3.2% are unemployed (UBOS, 2005). The total government income is equivalent to US\$1.758 billion, with an expenditure of US\$1.984 billion, according to the Economic Intelligence Agency.

Many communities are unable to access ICTs without financial assistance. Additionally, the electrical power distribution and the telephone

service are particularly poor across the nation, even in some of the urban communities. Only 8.9% of the population is connected to electrical service, and only 0.36% has landline telephone service. The local governments are unable to support ICTs, especially when faced with the tax structure, which used to be the major source of income to most local councils. Still, most local councils have supported PACs and have even provided housing and supplementary support personnel, such as cleaning staff and guards.

A PAC is influenced by a number of environmental factors. There are well-developed laws within the public and community library systems that regulate the use of libraries, but the National Library does not presently have an ICT strategy or policy. However, an ICT policy within the context of the National Library Policy, under the Social Sector Development Plan, is being developed. The policy will guide the deployment of ICTs and ICT services within the National Library facilities. Additional laws, such as the Journalist Statute, copyright act, the Access to Information Act, the Records and Archive Act, e-policy, and e-government, are in place to regulate the deployment, use, and flow of information in the country.

The proposed national ICT policy is relatively new and up-to date, but it is still under review by the cabinet. Some sectors have already developed sector policies using the draft national policy as a guideline. The Rural Communication Development Program is one such policy, fund managed by the UCC to improve the working environment for private investors in rural communities.

There is a favorable political will at the national and local levels to use ICTs for economic enhancement. The office of the president has been central in all the processes, which led to the installation of a state minister and full Ministry of ICTs. A presidential decree waived the tax on importation of computers a couple of years before this study was conducted, and this commitment has been sustained in subsequent financial years.

At the regional level, Uganda has collaborated with the governments of the Eastern African region to install an underground fiber optic cable that is expected to reduce connectivity costs throughout the region. A national terrestrial cable framework has been constructed in much of the country. Other international initiatives sponsored by the International Telecommunication Union (ITU), International Development Research Center (IDRC), World Bank, the New Partnership for Africa's Development (NEPAD), and others have supported the roll out of ICTs for development.

The government has stated that it believes that ICTs can help close the digital gap between the social classes. The campaign to motivate people to use ICTs has seen generally favorable response, and the link between social change and communication has been widely described in recent years. There are still not many functioning PACs in Uganda, but the initiative to support them is still new and beginning to grow. The few projects in the selected venues by local and International investors were welcomed when they were installed, but their performance declined when they lost their funding. The sustainability of technology at the community level is problematic, and the economic policies at the national level that affect widespread technological application are questionable.

The National Information and Communication Technology Policy (2003) facilitates a comprehensive and coordinated development of Uganda's ICT sector. The scope of the policy treats information as a resource for development and is intended to be a mechanism for accessing information, while viewing ICTs as an industry, including e-business, software development, and manufacturing. The policy looks at various categories of information from different sectors and is aimed essentially at empowering people to improve their living conditions.

This policy has enabled the liberalization of the telecommunications sector, which in turn has led to the improved use of ICTs. The Uganda National Household Survey (UNHS) (2005/2006) reports

that, nationally, nearly half of the communities reported having access to telephone service, as compared to five years ago when there was only one telephone for every 5,000 people. The policy gives more people the opportunity to access information through access points, including libraries, post offices, and community telecenters.

The Uganda Vision 2025 initiative was implemented in 2000 and provides the framework for planning the national economic and social development needs for the next 25 years. It sets the long-term strategies and policy options derived from the National Long-Term Perspective Studies (NLTPS) implemented through the various sectors.

The strategic plan envisions that by the year 2025, Uganda should: 1) have attained a conducive macroeconomic environment, 2) be a science and technology driven country, 3) have a society that recognizes information as a national resource, 4) have a coordinated network of information sources, systems, and services, and 5) have a modern, adequate, and sustainable infrastructure. However, the Vision 2025 does not have any specific focus on ICTs, and the means to support the Vision 2025 targets are inferred rather than taken from the actual Vision 2025 document. It is expected that the Vision 2025 initiative will take more specific cognizance of ICTs, both as an enabling sector and also as a specific economic sector.

The government identified ICTs as a crucial sector in Uganda's economic development when formulating its Big Push Strategy, along with its associated incentives in 2000. This identification of ICTs led the government, in 2001, to declare ICTs as one of the eight sectors that were eligible for government intervention in order to generate export revenues through the Strategic Export Program (SEP). Subsequently, in 2002, all import taxes on computers were removed. And then in 2003, the cabinet approved the ICT policy, which was one of the Big Push Strategy recommendations.

Other ICT activities under the SEP have included ICT missions to South Africa and to Silicon

Valley in California to seek joint ventures, partnerships, market support, and industry matchmaking for Ugandan companies. The Uganda Investment Authority has initiated arrangements to establish an ICT Incubation Center to support the development of this industry. As a result, more computers have been imported into the country. Despite this, the equipment prices are still high, and largely explains why, according to the UCC report on the Uganda Telecommunications Sector Policy Review report, that only 3.5% of the population owns personal computers.

Additionally, the Rural Communications Development (RCDF) policy, established in 2001 and officially inaugurated by the UCC in 2003, is Uganda's approach to implementing a form of universal access and is a mechanism to motivate and mobilize the private sector to invest in ICTs in rural areas.

The RCDF is expected to encompass the energies and interest of private telecommunications operators already active in the country, enabling them to compete with one another, as well as to encourage new operators to participate in the extension of services to poor rural areas. The RCDF is a means of intervention to ensure that basic communications services of acceptable quality are accessible at affordable prices and within reasonable distances by all people in Uganda. It was meant to assist in areas where the provision of commercial services is not feasible, to provide basic universal access, and to promote competition among operators.

To implement the program, telecommunication service providers contribute 1% of their annual income to leverage investment, rather than provide all the solutions. Projects supported by the RCDF include the district portals, multipurpose community telecenters, and public telephone booths. So far, two multipurpose telecenters, 53 Internet cafés, 12 telecenters, three public pay phones, and 53 ICT training centers have been established through this program.

The National Library Act 2003 provides for the establishment of the National Library of Uganda, the retention and preservation of publications, the formation of an information referral service and library coordination, and to provide for other related matters. The National Library of Uganda was established by an act of Parliament in 2003. The Act also decentralized public libraries operated by the former Public Libraries Board to local governments and left the responsibility of coordinating their development to the National Library of Uganda. The Act also repealed the National Library Act of 1964.

The National Library of Uganda is responsible for forming policy for Uganda's public libraries. The Act further provides that the National Library should be the apex of all libraries and that public libraries should be developed at the district and sub-county headquarters, while a community can establish community libraries, if that community recognizes a need.

Library services are expected to cater to all members of the community, including disadvantaged groups, such as women, displaced persons, and persons with disabilities, such as the blind and those confined in hospitals and prisons. The policy promotes the use of all types of media to disseminate information, such as books, CDs, computers, and videos, and encourages libraries to provide materials to meet those needs.

Libraries are generally viewed as good ways to disseminate public information, but most are located in urban centers, and the rural areas have few library services. The services provided in rural areas are generally inadequate, and the libraries lack resources.

The available information services are open and easily accessible, and the governing policy states that ICT services could be provided at libraries if there is support from the Ministry of ICTs and the UCC. As a result, the American Embassy has decided to open up American units in different public libraries nationwide.

Several regulations shape the establishment of PACs by local governments, and one of them, the Local Governments Act 1997, charges local governments with the responsibility of establishing and managing public libraries in the district. But even though several bodies and individuals have established PACs in their communities, the majority of local councils lack libraries. The greatest problems facing these libraries are the lack of adequate funds, a lack of support from the local government, and insufficiently trained staff to run the libraries. Most librarians noted that since the libraries are based at local government levels, they are usually not allowed to operate beyond their areas of jurisdiction. For example, they are not allowed to operate beyond the central division, yet at the higher level, it is assumed that they serve the entire district.

At the regional level, the Common Markets for Eastern and Southern Africa (COMESA), ICT policy was developed to serve as a policy model for the development and application of ICTs within member states with a view of turning the COMESA into an information-based society. The policy framework addresses affordable, ubiquitous, and high-quality services, building a competitive regional ICT sector, and creating an enabling environment for sustainable ICT diffusion and development.

To achieve these lofty objectives, member states, including Uganda, are encouraged to adopt new approaches that can: 1) enable interconnectivity among all operators and service providers within the region, 2) promote universal service and access, 3) encourage competition in the sector by removing entrance barriers, and 4) establish an appropriate licensing regime that is transparent and conducive to investment in the sector. However, the regional framework does not provide guidelines and approaches for broadcasting, Internet service, or postal services, as well as an inter-sector linkage of ICT usage and applications, such as e-commerce, e-education, e-government, e-agriculture, and e-health.

The East African Commission (EAC) Secretariat sponsored a study on a regional communications strategy that recommended countries revisit their ICT policies and subject them to a task-force review to achieve a common ICT policy for the region. The study also addressed gender and youth issues, as well as recommended a common definition of ICTs, the creation of a ministry or a body to oversee the implementation of the ICT policy, and the promotion of early ICT training in schools. The study also recommended resurrecting the implementation of a high-capacity link of the Erstwhile EAC Digital Transmission Project, supporting a transoceanic submarine cable and licensing of regional links.

Uganda has already committed to support the Eastern Africa Submarine System (EASSy) cable project. The EASSy will link to the global submarine cable network through other regional undersea systems, including SAT3, SAFE, SEA-ME-WE 3, and SEA-ME-WE 4, and encircle Africa through high-capacity fiber-optic telecommunications networks.

Optional fiber cable systems will be finished by 2010, and are expected to help reduce connectivity costs. At the same time, many companies are investing in content opportunities to be prepared for the opportunities that will be created by the completion of the EASSy and terrestrial fiber installation. The Ugandan government is also investing in rural electrification and alternative power source efforts.

COLLABORATION

The National Library is the body mandated to oversee public libraries in Uganda. The National Library serves as a link for donors, NGOs, and other bodies interested in partnering with public libraries in the country. But individual civil society organizations have been established especially to support the professionals and other types of PACs in the country.

The Uganda Library and Information Association (ULIA) was established in 1972 as an offshoot from the East African Library Association (EALA), founded in 1957, and is a professional organization that articulates the interests of the library and information profession in Uganda. In 2000, the ULIA launched its first strategic plan that transformed it into a dominant force in addressing such issues as: 1) book development and the development of a reading culture, 2) interventions into national, public, and school library development, 3) ICT adoption and use by library and information networks, 4) Library Information Society (LIS) curriculum development issues, 5) continuing professional and career development for LIS professionals, and 6) engagement of government, civil society organizations, and the media on issues affecting the development of the library and information profession.

In contrast to the objectives of the ULIA, the Uganda Community Libraries Association (UgCLA) complements the education system, and promotes the development of productive literacy practices by encouraging and supporting the growth of community libraries. Its functional support extends to capacity building, fundraising, and other supportive functions, such as networking community libraries.

The Friends of African Village Libraries (FAVL) is a network of individuals and donors committed to long-term support for small community libraries in rural Africa. FAVL funding is currently limited to supporting libraries within its network.

The UgaBYTES Initiative is a not-for-profit telecenter support network established in 2000. The objective is to assist telecenters to increase their capacity by sharing knowledge and e-discussions and to create an impact on grassroots development. The organization also is involved in building the capacities of telecenter operators in management and technical subjects. UgaBYTES has become the most influential telecenter support network in East Africa through its online and offline support services.

BUZZ FACTOR

The common perception among the illiterate people in Uganda is that libraries exist only to serve an elite segment of the population and are irrelevant to all others. The well-educated people, especially researchers and students, believe that libraries are fine, but think most of the infrastructure is out-dated. The young people think that libraries are old fashioned, especially with the advent of computer-based information. In contrast, some library managers think ICTs are a waste of time and divert library users.

LEGITIMATE USE AND THE SHIFTING MEDIA LANDSCAPE

Many young users claim that using Yahoo!, Skype, instant messaging, and other chat sites have enabled them to make new friends and interact with their peers locally and internationally, but this view is most commonly expressed in urban venues. These various services are used far less often in the non-urban areas. Telecenter managers believe that the chats, games, and music have helped introduce the younger users to computers, which they will use later for more serious work, such as typing school assignments. However, the older people think differently, and are concerned that ICTs will expose young people to socially unacceptable sites, and that uncontrolled access to the Internet will quickly lead to moral degeneration.

Perceptions about what is legitimate and what is not legitimate are divided, and urban people generally seem to be more open and tolerant than non-urban people. The elderly are far more concerned with moral and cultural protection, regardless of the locality. Many professionals who are less familiar with ICTs tend to think some activities are too time consuming and divert the young people from serious purposes. None of these opinions or perceptions can be expected to change significantly in the foreseeable future.

Mobile telephony has had a rapid free growth in Uganda from the time the technology was first introduced by Celtel in 1995. The current mobile service providers have expanded to include Mobile Telecommunication Network (MTN), Uganda Telecom Limited (Utl), Warid, Celtel (now Zein), and two other minor providers. As the providers have emerged, so has the use of the mobile telephone technology for development activities.

MTN and Utl have collectively deployed more than 10,000 village phones in rural Uganda. The most popular services now in use in public access venues are the updates to meteorological information and agricultural market information offered to the farmers through SMS. More than ten private companies have opened free web service to mobile phone SMS systems and cost services, if they transmitted to group phones.

Social networking spaces are just beginning to be used by a very few people familiar with them, but most development websites use Web 2.0 tools to facilitate blogs, wiki pages, and online live chats. Wikis have been used by a number of researchers in Uganda.

Community radios have been an increasingly powerful tool for delivering information and generating content at the community level. Where radios have been installed, community involvement and participation has been readily adopted. Many sources have built partnerships with the private, civil, and public sectors to channel information through the community radios, but because of the attractiveness of the radio, PACs with community radios tend to neglect the telecenter and library components.

VENUE ASSESSMENT

Public Library

The first public library in Uganda was established in 1923 to serve colonial administration expatriates and remained in place with little change until

1945, when the Elspeth report recommended the creation of the East African Literature Bureau (EALB) (Ikoja, 2004). It became operational in 1948 under the East African High Commission. In 1963, the EALB became the Uganda Library Service, which, in 1964, the East African Common Services Organization (EACSO) transferred to the Ugandan government as a wing of the Ministry of Planning and Community Development. A board was installed later that same year.

In the late 1980s, the National Resistance Movement initiated a decentralization processes to build a democratic governance and increase local ownership. Under that initiative, the Ugandan constitution of 1995 provides for the decentralization of power, (Government of Uganda, 1995). Public libraries were no longer the responsibility of the Public Libraries Board under the Local Government Act No.1 of 1997 (Government of Uganda, 1997). Following 1999, districts have taken on the role of establishing, managing, equipping, and maintaining public libraries, but only thirty of the eighty districts in Uganda now have public libraries. A plan is being developed to provide the remaining districts with public libraries at the rate of two districts each year.

Public libraries are open to all, but are not accessible to all. The nature of the content and services provided unintentionally targets a biased group of the wealthier and better-educated members of the community, and that is why researchers and students are the most frequent users. Very few programs target special interest groups, such as women, young people, and the disabled, and few librarians display any innovation or interest in serving the needs of special groups. For example, at the Mbarara Public library in the western part of the country, disabled people who visit the library face problems entering the facility, and that is especially true of people confined to wheelchairs. Services have always been provided to them outside the library whenever that was convenient.

Overall, public libraries lack ICTs services, and also are constrained by a lack of reading

space during peak periods, especially during school holidays.

According to the users who were surveyed, public library services are generally appropriate, but not enough services are offered. Content in the venues does not adequately address the needs of many groups, and these were common responses in all of the venues the researchers visited. Most libraries lack the information that targets the uneducated and focuses on the literate segments of the community. Most information is aimed towards students at the expense of the rest of the community.

Public libraries have only just begun to focus on technologies, and one such program has recently been initiated with support from the American Embassy. The services offered are largely free, except for loaned books and resources, and users are required to present proper and valid identification to access those services. Additionally, the ICT services, although still minimal, are affordable and a small fee is attached to the service. Many potential users lack the necessary training to take full advantage of the services, and this situation is most common in the non-urban areas.

Public libraries are funded entirely by the government, and the library services are seen as serving the public good. In the 2008-2009 fiscal year, the government budgeted 779 billion shillings for the public libraries. But despite the additional private investment, part of the population still remains unable to access the services unless third-party support becomes available.

Public libraries operate within a more structured system than the other venue types. They have a more clearly defined system of administration and have the government anchor and support. Day-to-day management rests with professionals, but there are far fewer public libraries than there are other venues, and the content and services offered through the public library system are quite limited when compared to the other venues. The needs of special clients are particularly poor.

MULTIPURPOSE TELECENTERS

The multipurpose telecenters have undergone rapid and extensive changes since 1997 when UNESCO, the ITU (International Telecommunications Union), the IDRC (International Development Research Center), and the Uganda National Council for Science and Technology (UNCST), together with the government of Uganda, entered into partnership to establish the first generation of telecenters. Many new participants in the private, public, and civil society sectors are establishing different types of telecenters, and the number of multipurpose telecenters has grown to 144.

The new types of telecenters focus on offering key services, such as commodity market access and pedagogical enhancement, in addition to traditional services, such as Internet access, photocopying, printing, faxing, and telephony, which are becoming lesser services. The new generation of telecenters is built on services rather than merely providing a platform and space for communication. The telecenter community in Uganda is thus characterized by new names, such as Commodity Change Points and Business Development Centers. The more prominent participants in this new type of venue include the UNESCO under the Ministry of Education and Sports, the RCDF under the UCC, United Nations Industrial Development Organization (UNIDO), ConnectED, IDRC, Worldlinks, International Institute for Communication and Development (IICD), and some new content players, such as the Technical Center for Agriculture and Rural Cooperation (CTA), National Agricultural Research Organization (NARO), NAADS, UgaBYTES, United Nations Children's Fund (UNICEF), and many civil society organizations, including national and community organizations.

All the telecenters serve a very ambitious geographical area that, even if centrally located, the location would remain a prohibitive factor for users. This research study has observed that telecenter users commonly have to travel more

than 10 kilometers to access a telecenter, and many users lack any clear means of transport to reach the venue. Strategically, these new venues become an extension of telecenter services to the users, and the book-box services and the introduction of wireless connectivity in the telecenter vicinity are typical.

Telecenters offer a range of technologies, including radio, telephony, Internet, and reading space, as well as information technology application training and other pseudo-services, such as photocopying. However, these technologies are still less linked to the needs of the community, and many people believe they are currently used mainly by the wealthier and better-educated members of the community. Still, most of the users agree that the technologies are generally appropriate for community development, although they require orientation before being used.

Many believe that integrating mobile telephony into the technologies used at the telecenters could increase the appropriateness of that technology to a broader spectrum of the population. The general analyses also reveal that lifecycle costing for some technologies, especially connectivity, makes the technologies inappropriate. The telecenter pays for the expensive VSAT satellite connectivity, which is beyond what the community is able to later pay alone.

Increasingly, telecenters are becoming less affordable to all segments within the communities they serve. The desire to sustain operating costs and lifecycle technology costs, such as VSAT connectivity, places an enormous pressure on the management to pass the costs on to the end users. It is typical for these venues to exclude the poor segment from most of the services. However, from facility to facility, there are some services that are introduced to cater to special groups, including women, children, and the poor. Multipurpose telecenters have partnered with development organizations, such as the Council for Economic Empowerment of Women in Africa (CEEWA), to repay for community access to Internet and

ICT training programs. Special training days and computer access points have been established for this special interest group.

Overall, telecenters depend on volunteers and poorly paid staff to operate. Most facilities have designed programs that address specific community needs and the needs of special groups. Services are designed to fit the daily living and social and cultural needs of the community, such as farming, governance, production, education, healthcare, and life-skills issues. Women and youth also have been specifically targeted by most telecenters, and the outreach programs have increased the number of individuals who benefit from most telecenter services.

Overall, the government has shown a willingness to provide access to ICTs by creating an enabling environment. A national ICT policy has been formed, together with sector policies, to support its implementation. Additionally, the parliament passed the RCDP/F (Rural Communication Development Program/Fund) to enhance the telecenter development sector, led by the private sector. To implement the program, telecommunication service providers contribute 1% of their annual income to leverage investment. The NEPAD e-school initiative has the support of the government to ensure the country's position in the region. At the local level, the communities have offered space to house many facilities for this venue. The Ministry of Education and Sports also passed an ICT curriculum for secondary schools several years ago.

Interested individuals, communities, or organizations can open a telecenter facility without seeking legal consent from any authority, and telecenters in the rural areas lack any legitimate kind of networking organization. The UgaBYTES initiative remains the only support organization that has developed any opportunity for the telecenters to network and share information, resources, and opportunities. However, the network is largely seen as a regional force, which thus weakens its impact at the national level. Additionally, the net-

work is not based on subscription, but on support services, which make the interactions among the members and the nodes quite informal. Individual telecenters remain in a small network under the funding organizations, or any other source of support they might have.

COMMUNITY LIBRARIES

There are 36 community libraries in Uganda, and some are organized under the UgCLA (Uganda Community Libraries Association), but while the UgCLA network supports the PACs, it has no requirement to know how many community libraries are in the country. They only acknowledge and support community libraries registered with them. Consequently, the actual number of community libraries is not readily available.

Community libraries in Uganda exist through the efforts of concerned individuals, communities, and NGO initiatives aimed at developing communities through access to information. They differ from public libraries in that they are created by and for a local population and are not usually supported with government funds. A school, church, or community group may organize them, but the needs of the community at large are considered to be of the utmost importance. The collections and services of the library represent those needs. Community libraries also often provide informal educational services, such as literacy instruction (Raseroka 1994). The community librarian lives in the community and has close personal relationships with the users. One source suggests that the rural library has three functions: provide information to those individuals responsible for rural development programs, support rural education programs and rural schools, and serve as centers for community, education, and culture (Kagan, 1982).

Most community libraries are situated in non-urban centers, where access to electrical power

poses a severe challenge to the services provided through ICTs.

Location and poor sensitization programs create accessibility problems for community libraries. The Kitengesa Comprehensive Secondary School in the Masaka district is an example. The library is located in the school, and literacy levels largely influence accessibility to this library. Most members of the community consider the library to be targeting students only because of the location.

Ugandans lack a culture of reading books, a complaint heard everywhere researchers visited. Although the Kijura community library, like other community libraries, was aimed primarily at developing the community through access to information, the full-time librarian was not motivated because no community members were using the library. The library is strategically positioned in the non-urban part of the Fort portal district and is surrounded by primary and secondary schools. The students are the primary users, but readership is still very low.

Community libraries have outreach programs that specifically target schools, and all of the community libraries have a small annual fee of 2,000 UGX. Community libraries based at telecenters offer ICTs, but only a few community libraries outside telecenters offer ICTs, and the Kitengesa community library is one such example. Although some libraries have electricity, such as the Kijura community library, management has no immediate plans for introducing ICTs, which forces users to travel long distances to access ICT services.

Human capacity in community libraries has been poorly developed, and most staff members lack any advanced level of education or underwent on-the-job training. The training is dependent on registration with the UgCLA and the National Library of Uganda (NLU). The association and the NLU provide almost the same services for monitoring and training library staff, but the UgCLA only targets community libraries while the NLU targets all libraries in Uganda.

Community libraries in Uganda primarily serve the rural communities in Uganda, where agriculture is the main productive activity. Uganda's economy is predominantly agrarian, subsistence production remains the norm, and 70% of the area under cultivation is used to produce locally consumed food crops. Women comprise more than half of the agricultural labor force, and, traditionally, they have focused on food rather than cash crop production. As such, the community libraries regularly seek agricultural literature from NAADS, and from the libraries that partner with existing Community Based Organizations (CBOs) and NGOs to develop local content that suits the communities. For example, the Uganda Development Service (UDS) and Bugosa Rural Open Source Development Initiative (BROSDI) in the Eastern region, as well as the KIC in the Northern region, partnered with UgaBYTES to help telecenters and CBOs develop local content for the communities.

In general, all of the stakeholders who were interviewed contend that the national environment is not particularly supportive of their services to the community. Although the government has been campaigning for the use of PACs, it has not offered adequate practical support for the venues. According to Charles Endra, the assistant director of the NLU, "The environment for offering library services is just average due to inadequate support from those who should be providing resources for library development." In addition, the Senior Information Scientist at UNESCO–Uganda notes, "Even when there are already existing PACs in place, the government is not giving any support. Every time the issue is brought on board, they claim that funds to provide tools are not there."

In light of these statements, the UgCLA has not been effective at addressing the problems faced by the community libraries and claims that they lack the resources to implement their work, even as the association continues to grow. The association only registers community libraries that approach the association for registration,

and they have not extended any effort to identify the total number of community libraries in the country. Some community libraries, however, are registered with the NLU, and benefit from the support services of that organization. Other local public-private partners, such as The Aids Support Organization (TASO), the Association of Uganda Female Lawyers (FIDA), Straight talk, Red Cross, Young Men's Christian Association (YMCA), and others help community libraries by providing materials.

SUCCESS FACTORS AND STRATEGIC RECOMMENDATIONS

This study revealed that there is an urgent need among the population of Uganda for information on agriculture, empowerment for women, healthcare, HIV/AIDS, food security, employment and employability, education, weather forecasts, entertainment, and entrepreneurship. It is equally inferred that market information for rural produce is a priority. The rapid adoption of SMS market information systems has been a welcomed phenomenon. The PACs are valuable to the public and have the ability to offer training, especially in rural communities, but there are not enough of them in place.

It is quite clear that there is not any one place for people to go that will meet the needs of all people, or that satisfies all the information needs of the community. Most information providers concentrate on specific areas of interest, but again, not at any comprehensive level. For example, the NAADS provides part of the agricultural information, while most of such information is scattered among different NGOs, government agencies, and private enterprises. Very little online content coordination exists.

ACCESS, CAPACITY, AND ENVIRONMENT AFFECT PUBLIC ACCESS

The government and the key policy makers have worked to close this information access gap by promoting the expansion of telecommunications and technical services nationwide through providing a favorable environment for the private sector. Several access, capacity, and environmental issues contribute to the success or failure of the PACs.

Access

Location and limited services are the greatest impediment to access in all PACs, and public libraries have very limited relevant content. These three factors widely influence the access and usage of PACs. The PACs serve a very wide audience, which makes location an unavoidable factor in determining access. There can never be a location that is adequate given the current size of operations.

Additionally, most PACs were established with the view of providing space for learning and sharing, but conditions now call for them to offer services in the centers that reflect basic community needs, and few venues have responded. Most services are packaged in English, which is unpopular in most rural communities because of the high rate of illiteracy. The situation is worsened by ineffective staff at the venues who influence service and content availability that addresses the needs of the poor, women, people with disabilities and the illiterate. For example, PACs cannot provide training because of the very limited staff and the lack of funding.

However, PACs utilize user clubs and outreach programs to reduce the impact of their venue location and poor services. The clubs are used to increase participation and sharing, even if only one member of the community periodically accesses the services of the center. The book-box program and mobile information technology services are

outreach methods that deliver the services closer to the users, but these programs are limited by cost, insufficient staff, and the lack of support infrastructure, such as computers, electricity, and connectivity.

Some telecenters have found a wireless connectivity solution that involves community nodes that reduce transmission-distance problems. The multi purpose telecenters (MCTs) are more advanced in those solutions than community libraries and public libraries. Other physical access challenges include electricity, bad roads, little or no public transportation, connectivity costs, and the poor economic status.

There is insufficient technological integration to meet the needs of the population. This issue has meant that cheaper ways of accessing information and content in the communities cannot be used. The private sector has significantly improved the penetration of radio, mobile phone, and television networks, but these technologies are not available in most multipurpose telecenters. Although the access to technology is still largely limited to the more affluent and literate groups in the communities, community radios have cut through this barrier wherever they do exist. The SMS technology has also addressed the needs of the rural residents by providing market information updates.

Technology-based services and equipment costs remain high, even though the government waived taxation on computer importation, and most people consider the waiver to be limited because it does not cover the accessories. Connectivity still relies on satellite solutions, which are expensive, and the high cost of the technology and services provided by the venues hinders technological appropriation.

Capacity

The PACs are under staffed, and most depend on volunteers. Many of the people who have developed their technological skills migrate from

rural to urban areas to seek better employment opportunities.

Much of the locally relevant content that is technologically supported is out of date, but many venues have no choice but to continue to offer it. Some MCTs have community radios that have an important impact on information sharing, but many other venue types lack any technology-based ways to touch the lives of the community effectively. Communities are, therefore, driven to use the available printed materials.

The social and cultural factors have caused an unequal adaptation to technology access and use. The people between the ages of 15 and 35 are the most frequent users, and most of the older people perceive that technologies are only for the young. The disadvantaged groups are deeply underserved, especially the disabled, elderly, women, farmers, illiterates, and the poor. These groups form the most important target for the PACs, even if very few PACs actually focus their services towards these groups.

Other similarly underserved groups include children, orphans, and internally displaced persons. All the underserved categories are affected in different ways. Some are excluded by the travel distances to the centers. Most of the available materials are not locally oriented, the local publishing industry cannot distribute publications evenly across the country, and many venues lack the funds to promote the services. Other deficiencies include a lack of marketing of the library and community engagement activities, a lack of any historical reading culture nationwide, and the high rate of poverty.

Environment

About 87% of the entire population lives in rural areas and depends on subsistence-level agricultural activities. More than 37.7% live below the national poverty line and 3.2% are unemployed. Financially, many communities are unable to access ICTs on their own, and the electrical ser-

vice and phone penetration are very poor. Local governments are unable to support ICTs or PACs without additional funding, especially with the changes in the tax structure.

The Role of ICTs

It is generally accepted that ICTs can play a crucial role in development, but many venues lack ICTs for a variety of reasons. Most venue employees lack sufficient skills to adequately apply ICTs, and the infrastructure is inadequate to accommodate ICTs, including electricity, connectivity, serviceable computers, and high ICT maintenance costs.

However, SMS systems have helped farmers improve their income, while radio programs have demonstrated a very fast way of generating, sharing, and engaging the community. It is strongly agreed by the government that ICTs are an enabler to development.

SUCCESS FACTORS AND RECOMMENDATIONS

Success Factors

PACs have not yet achieved total success, and some have failed, but several success factors have been observed during this study.

- Most of MCTs had programs designed entirely for the communities. They extended agricultural programs to the farmers and provided market prices for produce, while introducing food security programs aimed at improving the standard of living for the farmers. They reflected a true appropriation of the PACs in community development.
- When the PACs integrated several stakeholders and partners, they built their service base rapidly at the community, regional, national, and international levels. They offered more services and had sup-

port in most key requirements. For example, NGOs provided content and services through the PACs to address the inequity gaps more strategically, while others subsidized service costs, such as connectivity fees.

- Most PAC users are students and young people, and all libraries provide an environment that is conducive for serious readers. Some parents depend on the information brought by their children because the parents are illiterate.
- PACs that have community outreach or community radios had the greatest impact on their communities. As a result, some PACs with no radio have started purchasing airtime on commercial radio stations for the same reason. The focus on radio-builds on the reality that most Ugandan communities are oral and more than 64% of the population acquires information by word of mouth (UBOS, 2005).
- Most venue success has been gained mainly through good management and strategic PAC managers. Most success factors were observed in PACs with good management and strategic leaders.

PACs that had Internet connectivity were more successful than those without. The ICTs that were found in PACs included community radio, video sets, computers, the Internet, telephones, photocopiers, and SMS. For the centers that had a selection or all of these services, the overall social appropriation increased, depending on how strategically ICT services were applied. The impact of radio, the Internet, and SMS service was profound.

ICTs are important in empowering the community through access to a wide range of information, but radio was particularly relevant in reaching users in their homes, delivering the right information, and employing people familiar to the users. Radio is a tool that can do the most to overcome the

wider problem of content and language challenges. The community accessed the Internet for web browsing and email. They also used the Internet for reading, learning, typing, news, searches for music, games, and commercial needs.

In areas where ICTs were offered, users were faced with many challenges, including the high cost of ICT usage, network inconsistencies, a lack of computers, inadequate and insufficient content and services, hours of operation that never favored some of the users, locations of the venues that were not convenient to some, and the irregular power supply.

Recommendations

The following recommendations are based on the results of this study.

- Revisit the National ICT Policy and the National Libraries Act to ensure that the issues of e-services, e-content, PAC venue cohesion, and ICT access and usage are strongly addressed. This redressing should be complemented with support for practical and efficient policy implementation, administrative processes, and extensions of ICT access centers to all districts, while building on the existing centers and other PACs to leverage social appropriation.
- Support a PAC population survey that covers all public libraries, community libraries, telecenters, cybercafés, and post offices in order to strengthen the content, service, development, and distribution processes.
- Support the establishment of a functional and nationally coordinated PAC venue network with the authority to increase the number of PACs and to address the quality of services offered. This support should be coupled with partnerships, networking, and collaboration among PACs, key NGOs, and civil society organizations (CSOs).

- Support infrastructure development efforts, especially with regards to rural electrification, fiber-optic installation, and public library roll out in the remaining districts.
- Strengthen the rural electrification program to encourage the use of ICTs in non-urban areas because alternative power sources are not affordable. The government should strengthen its role of encouraging districts to establish community libraries, as well as to increase its efforts to install and fully support new public libraries in the ever-growing new districts.
- Digitize government services and key NGO services that can help in strategic development and delivery of e-services to disadvantaged groups. This initiative will facilitate and promote ICT-based content and service availability. Provide complementary support for local organizations and NGOs involved in local content development to aid community development and increase social appropriation.

CONCLUSION

This research marks the first time PAC venues have been studied comparatively at this scale. The process unveiled several issues and success factors across the landscape of public access.

The study results indicate that PACs are useful and can be successful, especially those PACs that have services which meet community needs. These centers are built on partnerships and multi-stakeholder involvement. They focus on a key customer base, make strategic community outreach efforts, and, in general, have adequate management. Centers that had ICT and radio broadcast components performed far better than those that did not.

Further research is needed to understand the actual numbers of public access venues, and it is equally important to conduct studies in content development and management areas.

Throughout all the venues, documentation about users, regarding such things as demographic factors, information needs, income levels, and other equally important data, is not available, and apart from public libraries, the number of PACs in the country is not known. The research depended largely on estimates given by stakeholders, users, and supporting institutions.

This research can be used to form the basis for policy reviews, PAC improvement, and guide direction for future research in this field. One of the major revelations of this research has been the identification of gaps for future investment, and the factors on which success will build. The research identified that coordination and monitoring of PAC venues is very poor, that deployment, access, and usage of ICTs by disadvantaged groups is significantly low, and that content management and sharing efforts are uncoordinated or nonexistent.

ABBREVIATIONS

1. **BROSDI:** Busoga Rural Open Source Development Initiative
2. **CBOs:** Community Based Organizations
3. **CEEWA:** Council for Economic Empowerment of Women in Africa
4. **COMESA:** Common Markets for Eastern and Southern Africa
5. **CSO:** Civil Society Organization
6. **CTA:** Technical Center for Agriculture and Rural Cooperation
7. **DP:** Democratic Party
8. **EAC:** East African Commission
9. **EACSO:** East African Common Services Organization
10. **EALA:** East African Library Association
11. **EALB:** East African Literature Bureau
12. **EASSy:** Eastern Africa Submarine System
13. **FAVL:** Friends of African Village Libraries
14. **FDC:** Forum for Democratic Change
15. **FIDA:** The Association of Uganda Female Lawyers

16. **ICT:** Information Communication Technology
17. **ICT4D:** Information Communication Technology for Development
18. **IDRC:** International Development Research Center
19. **IICD:** International Institute for Communication and Development
20. **ITU:** International Telecommunication Union
21. **LIS:** Library Information Society
22. **MCT:** Multipurpose Community Telecenters
23. **MTN:** Mobile Telecommunication Network
24. **NAADS:** National Agricultural Advisory Services
25. **NARO:** National Agricultural Research Organization
26. **NEPAD:** New Partnership for Africa's Development
27. **NGO:** Non-Governmental Organizations
28. **NLTPS:** National Long-Term Perspective Studies
29. **NLU:** National Library of Uganda
30. **NRM:** National Resistance Movement
31. **PAC:** Public Access Center
32. **RCDP/F:** Rural Communication Development Program/Fund
33. **RDC:** Resident District Commissioner
34. **SEP:** Strategic Export Program
35. **TASO:** The Aids Support Organization
36. **UBOS:** Uganda Bureau of Statistics
37. **UCC:** Uganda Communications Commission
38. **UDS:** Uganda Development Service
39. **UgCLA:** Uganda Community Libraries Association
40. **ULIA:** Uganda Library and Information Association
41. **UNCST:** Uganda National Council for Science and Technology
42. **UNESCO:** United Nations Education Science and Cultural Organization
43. **UNHS:** Uganda National Household Survey
44. **UNICEF:** United Nations Children's Fund

45. **UNIDO:** United Nations Industrial Development Organization
46. **UPC:** Uganda People's Congress
47. **Utl:** Uganda Telecom Limited
48. **YMCA:** Young Men Christian Association

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Chapter 33

Public Access ICT in Algeria

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EXECUTIVE SUMMARY

Introduction

Algeria is one of 25 countries participating in this study, which was designed to assess the public access to information and communication venues, and also to examine the role of information and communication technologies (ICTs) across the nation's overall economic, political, and regulatory framework. The study placed an emphasis on the information needs of underserved groups and communities.

The study was supervised by the Center for Information and Society (CIS) of the University of Washington and was conducted in collaboration with the government of Algeria. The intent of the overall project was to examine both the extent to which the general Algerian population has access to public information and the conditions that characterize the nation's communication landscape. Of particular concern were the information needs of underserved communities, the public access to information and communication venues, and the role of ICTs.

The research team combined site visits and interviews to review the physical infrastructure and human resources of a variety of venues, and to determine the information content, service usage patterns, communication, and knowledge development. Additionally, the team examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences. Following an analysis of the research, the team developed a set of recommendations for stakeholders and decisions makers to serve as a guide to improve the ability of the public to access and use the materials available in the venues.

Telecommunications and civil construction are becoming increasingly important throughout Algeria, but the existing ICT venues are concentrated in urban localities and typically lack current applicable content. Cybercafés, a few private libraries, and NGO-sponsored libraries are the only venues that are able to serve disadvantaged people and few of these sites have ICT-based services. Some people are able to use ICTs in the workplace, and some are able to afford the fees charged at cybercafés. Most Internet content is in English while most of the population uses Arabic, French, or Berber.

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Methodology

This research was performed as part of an international research project supervised by the Center for Information and Society (CIS) of the University of Washington in the United States. The project was conducted in two phases. During the first phase, the team prepared a draft report that described the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, the team identified the principal locations where people seek information and then selected public libraries, cybercafés, private and religious libraries, and several non-government organization (NGO) information services as the subject venues for this study.

The fieldwork team focused on fourteen representative provinces, and used a combination of research methods to: (1) observe how people access information, (2) conduct surveys in information venues where they interviewed operators and users in 145 municipalities, and (3) perform secondary research and analysis of existing reports and documents using both local and international sources.

Findings

The most frequently used sources of public information in Algeria are public libraries, private and religious libraries, cybercafés, and NGO information services. The researchers noted a definite usage pattern within these venues that followed four levels of venue preference. First, cybercafés are more commonly used than public libraries (except in the single specific case of the city of Ain salah in extreme southwestern Algeria because of a general lack of connectivity and low bandwidth). Second, most public library users come from the more educated population. Third, youth in general, and especially secondary school students from 15 to 20 years of age, are the predominant users at public libraries and cybercafés. Fourth, females are more likely to use public

libraries than males, but males are more likely than females to use cybercafés. Despite the useful role all of these venues play, access to the venue sites is not easy for many people because many areas lack telephone landline service, there is low bandwidth in some areas, but, more importantly, there are intellectual barriers, social barriers, and politically motivated barriers.

As the study progressed, the researchers identified a broad category of disadvantaged people that included the unemployed, the disabled and impaired, non-urban people, females, illiterate people, children, and elderly people. Additionally, there is a general lack of practical ways to disseminate information about official initiatives and information concerning events happening in remote and rural communities, as well as homework for students, entertainment information, and visa and passport procedures required for travel and immigration.

The research team determined that the most underserved groups were those who were unemployed, physically impaired, and lived in non-urban areas. The inequity variables noted by the team centered on venue access, gender, low literacy levels, and age. Among the more prevalent issues affecting access to public information include the severe inequities regarding employment opportunities, financial aid, subsidized social housing, and social security opportunities.

The researchers identified several concerns that limit the public access to information:

- There is no specific or effective initiative, policy, or strategic plan related to public library development.
- There is no effective collaborative way to link public libraries, cybercafés, private libraries, or NGO information services.
- No initiative or plan exists to promote the concept of public telecenters.
- Information venues are not conveniently located in communities and seldom even exist in remote and rural areas.

- There is little or no investment in wireless technology in much of the country.
- Little has been accomplished to implement the integrated rural development proximity programs (PPDRI) as a platform to establish ICT infrastructure in rural communities.
- Little evidence exists to indicate progress has been made to implement e-administration.

Success Factors and Recommendations for Future Research

The study team made several key observations and developed a set of recommendations regarding public access to information and communication venues. For public access to information and communication, especially in underserved communities, most people use cybercafés and municipal and public libraries.

Underserved communities lack widespread public access to the venues for a variety of reasons. The public venues generally have limited funds, are concentrated in urban areas, and are often subject to restrictive regulatory issues that limit the dissemination of information about job opportunities, financial aid, housing, social security opportunities, and administrative documents such as identity cards and passports. Some survey and interview respondents voiced concerns about what they perceived to be “bureaucratic” constraints.

The venue locations are often not readily accessible to much of the population. Many people in remote and rural areas must often travel great distances to reach a venue, while others face social, political, and economic constraints.

The increased availability of ICTs and Internet connectivity is viewed by the government and the public as a welcome opportunity to gain greater access to public information. This was one of the findings that led the study team to conclude

that Algeria holds great market potential for ICT providers.

Several recommendations emerged from this study of the ability of the Algerian people to access public information. It is recommended that the Algerian Ministry of Culture should institute a well-designed strategic plan of public library development that will address the following issues:

- Significantly reduce the mass of the administrative procedures that public libraries presently impose on users who want to obtain a reader card, and give priority to unemployed and physically impaired people.
- Design and introduce a functional concept of public library networks.
- Encourage public-private collaborative partnerships in support of public information venues.
- Establish the national library mobile-bus system as a library equipped with a mobile cybercafé and use e-tuk tuk (three-wheel scooter) as a model.
- Provide greater capital investments and allocations in the education of library staff. Improve the training methods to emphasize communicating with users and educating users regarding information and ICT skills.
- Further encourage the implementation of the 1994 IFLA/UNESCO Public Library Manifesto.

Furthermore, the appropriate national government agencies should complete the following important actions:

- Promote the concept of public telecenters nationwide. The promotion must be conducted in partnership with the Ministry of ICTs, the Ministry of Solidarité, the Ministry of Culture, private commercial Internet service providers (especially

EEPAD and Algerie Telecom), and the local NGOs devoted to help underserved communities.

- Either make information sources and facilities free, or ensure that the fee structure will permit the greatest possible number of low-income users to be able to gain access.
- Establish public access venues in readily accessible locations and coordinate this effort with the appropriate governmental agencies, such as the Ministry of ICTs, the Ministry of Interior Affairs, and the Ministry of Culture. Make venues an integral part of facilities such as public offices, post offices, banks, and municipal-service facilities, as well as in high-traffic locations such as bus stations, markets, stadiums, mosques, cafés, etc.
- Act through the Ministry of ICTs to encourage private investment and promote the widespread installation of wireless technology in rural, mountainous, and desert provinces and regions.
- Act through the Ministry of ICTs to actively pursue and encourage the Ministry's RIG (Government Internet Network) Project toward implementing e-administration.

INTRODUCTION

Country Overview

The People's Democratic Republic of Algeria is located in North Africa on the southern coast of the Mediterranean Sea. Algiers is the capital city. The country shares borders with Morocco to the west, Tunisia and Libya to the east, and Mali, Mauritania, and Nigeria to the south. Algeria had been an important part of the French colonial empire until it gained independence in 1962.

Algeria's geography, demography, political condition, and administration are important issues within the context of this research study and necessary to understanding the phenomenon of

access to public information. Each of these contributing factors has an impact on the inequities, physical access, social integration of information, and enabling environment in Algeria.

The country spans more than two million square kilometers (nearly ten times the size of Texas) and is composed mostly of sparsely populated desert and mountains. The Sahara Desert extends over 85% of the nation, and less than 4% of the country is even marginally arable. From a topographic perspective, barren high plateaus and the huge desert expanse cover most of the country, and there is a narrow, discontinuous coastal plain. The lowest elevation point is Chott Melghigh at 40 meters below sea level, and the highest point is Tahat at 2,918 meters.

Algeria is an important participating member of the Oil Producing and Exporting Countries (OPEC), and the oil industry has contributed heavily to Algeria's economy. In the past decade, Algeria has benefited from an increasing flow of foreign investments that had been slow to develop in previous years when the country experienced numerous periods of violent social and military conflicts. These extended periods of turmoil saw the rise and fall of several governmental shifts and administrations.

The GDP is said to be US\$269 billion, and the most of that figure comes from oil, gas, and petrochemical production. There has always been a modest agricultural base, but there also are important reserves of uranium, iron ore, lead, and zinc.

Political and Geographic Divisions

Algeria has an elected President as the head of state and an executive branch headed by a prime minister. There is an elected representative bicameral legislature. The lower house (the Assemblée populaire nationale) has 389 members and the upper house (the Conseil de la nation) has 144 members. The legal system is based on the constitution of 1976, which was subsequently revised in 1989 and again in 1997.

Algeria has experienced numerous and often tumultuous changes in its political direction. At times, the changes came about through armed conflicts that have essentially left the country under a military dictatorship despite the outward show of democracy. The nation's highly complex political environment rests in the hands of several political factions. The most prominent groups include the Front de libération nationale (FLN), which previously was the unique legal party; Rassemblement nationale démocratique (RND); Front des forces socialistes (FFS); Rassemblement pour la culture et la démocratie (RCD); Mouvement de la réforme nationale (Islah; Islamist); de la société pour la paix (MSP, an Islamist party); and Parti des travailleurs (the Labor Party).

In 1999, Abdelaziz Bouteflika was elected president, and in 2004, he was reelected for a second term. In October 2007, legislative elections were held to renew the members of parliament. As this study was conducted, three main political organizations (the FLN, RND, and MSP) formed what was called the presidential coalition, and another presidential election was scheduled to be held in April 2009.

From an administrative perspective, Algeria functions through a system of provinces called wilayas that are made up of dairas. Each daïra governs a set of municipalities. There are 48 wilayas, 160 dairas, and 1,541 municipalities. The nation has a number of densely populated cities and communities, and some of them can trace their origins back thousands of years. Today, the more important and larger urban centers are Algiers, the capital, Annaba, Batna, Bejaia, Biskra, Blida, Constantine, Djelfa, Ghardaia, Oran, Setif, Sīdī Bel abbas, Tizi ousou, and Tlemcen.

Provinces and dairas are governed by a wali and a daïra chief who are nominated by the president after a suggestion from the Ministry of the Interior. Municipalities are governed by a mayor and a council of municipality who are elected by popular vote. The wali is assisted by a wilaya council whose members also are elected by popular vote.

Demography

Of the nearly 34 million people who live in Algeria, 99% are of Arab and Berber origin, and while French is the official language, a number of Berber dialects are commonly spoken.

Just after Algeria gained independence in 1962, there was an unprecedented internal migration from rural areas to the cities. The president at the time launched a program termed called an "agricultural revolution" that claimed to hold many advantages to convince people (mainly farmers) to stay in rural areas, but the program failed. At present, 60% of the population lives in urban areas.

The national census figures show that 27.2% of the population is under 14 years of age, 67.9% are between 15 and 64, and 4.8% are over 65. The total population is composed of slightly more males than females. Most sources claim that the literacy rate is about 70%, and the unemployment remains somewhat steady at 14%.

In Algeria, the fundamental social organization is most often based on a tribal concept of family links and on linguistic and ethnic origins, almost entirely Arab and Berber, and 99.99% of the population is Sunni Muslim. The Berber people are descended mostly from the kabyls, chaoui, mozabits, chenoui, and targui groups.

Conclusion

The research team determined that the most underserved groups were unemployed, physically impaired, and living in non-urban areas. The inequity variables noted by the team centered on venue access, gender, low literacy levels, and age. Among the more prevalent issues affecting access to public information include the severe inequities regarding employment opportunities, financial aid, subsidized housing, and social security opportunities. For public access to information and communication, especially in underserved communities, most people use cybercafés and municipal and public libraries.

Underserved communities lack widespread public access to information and communication venues for a variety of reasons. The public venues generally have limited funds, are concentrated in urban areas, and are often subject to restrictive regulatory constraints that limit the dissemination of information about job opportunities, financial aid, housing, social security opportunities, and administrative documents such as identity cards and passports. Some survey respondents voiced a concern about what they perceived to be “bureaucratic” constraints.

There is a general lack of practical ways to disseminate information about official initiatives and information concerning events happening in remote and rural communities, as well as homework for students, entertainment information, and visa procedures required for travel and immigration. The venue locations are often not readily accessible for much of the population. Many people in remote and rural areas must often travel great distances to reach a venue, while others face social, political, and economic constraints.

The increased availability of ICTs and Internet connectivity is viewed as a welcome opportunity for the public to gain much greater access to public information, and the study team concluded that Algeria holds great market potential for ICT providers.

METHODOLOGY

Team Qualifications

The research team was led by Yahia Bakelli, who directed 290 student assistants from the Department of Library Sciences of the University of Algiers. In addition to his extensive academic career, he was able to call upon a widespread network of specialists and stakeholders from libraries, cybercafés, NGOs, academia, and gov-

ernment agencies. He spent more than 12 years as a researcher on information issues and gained experience in conducting national studies.

Literature Review

The overall study project for Algeria was conducted in two phases. During the first phase, the researchers prepared a draft report that described the information-access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, the team determined that the four principal locations where people seek information were public libraries, cybercafés, private and religious libraries, and several NGO information services.

More than fifty documents were reviewed, and included books and diaries describing Algeria, such as the 2007 Dictionnaire Encyclopédique de l'Algérie by Achour Cheurfi and edited by ANEP. A search for the term, “communication technologies situation” led the researchers to the two editions of ALGEROSCOPE for 2006 and 2007. There was information contained in a diary of the socio-economic conditions of Algeria published by the ACOM Agency. The researchers also used articles from local newspapers (Elkhabar and elwatan) and magazines (ITMag), as well as reports published by government agencies, the United Nations, and the World Bank. Additionally, the review included more than thirty websites of government institutions, associations, libraries, and information venues, as well as academic theses from the Department of Library Sciences at the University of Algiers through the Memobi database.

Venue Selection

The fieldwork team in Algeria focused on fourteen representative provinces and used a combination of research methods to: (1) observe how people access information, (2) conduct surveys

in information venues where they interviewed operators and users in 145 municipalities, and (3) perform secondary research and analysis of existing reports and documents using both local and international sources, including newspapers articles and government reports.

Among the more prominent locations studied were Algiers, Boumerdes, Ghardaia, and Tizi ousou. These cities contained urban areas, as well as areas with which the researchers were especially familiar. The cities also contained both urban and non-urban communities, as well as wealthy and economically disadvantaged groups.

The research team narrowed the study focus and selected public libraries, cybercafés, private and religious libraries, and several NGO information services. Although other types of venues exist, such as Internet sites at fairs and exhibitions, bookshops, and telephone services offering Internet access, these were excluded because they are used infrequently and lack both stability and sustainability. The study also excluded “archive institutions” and document centers hosted in government agencies, economic institutions, and SMEs because the staff and providers were considered to be a particularly knowledgeable segment that might skew the results of the study.

Inequity Variables

The inequity variables noted by the team centered on venue access, gender, low literacy levels, socio-economic position, physical constraints, and age. The more prevalent issues affecting access to public information include the severe inequities regarding employment opportunities, financial aid, subsidized housing, and social security opportunities. Many people have expressed dissatisfaction in their ability to access public information, but the issue is especially noticeable among the disadvantaged and remote communities and groups.

Large numbers of the population are unemployed, underemployed, living in poverty, or

lack ready access to a venue, and especially hard hit are females, illiterate people, children, and the elderly. The regions in which many of these people live are particularly underserved, such as the southern provinces in the deep Saharan region and the rural zones of the western and eastern regions. The people who live in the mountainous regions in the north, especially in the provinces of Tizi ousou, Bejaia, and Bouira, are equally underserved.

Data Collection

The study team conducted individual interviews, group interviews, focus groups, site visits, and surveys to obtain the information they needed. More than twenty individual interviews were conducted among members of parliament, journalists, intellectuals, and academics to develop background data and information about inequity issues and possible solutions to improve the public’s ability to access public information. One group of interviews focused on librarians, cybercafé operators and users, library staff and users, and key stakeholders and service providers.

The researchers conducted more than fifty site visits to public libraries, the National Library of Algeria, cybercafés, post offices, airports, bus and train stations in mountainous regions and isolated communities. Isolated communities in the Boumerdes and Tizi ousou provinces were selected especially because much of the population is poverty stricken and the communities are sometimes subjected to terrorist attacks.

One survey was conducted in 145 municipalities distributed across 14 provinces from the northern, central, southern, and western parts of Algeria. The study area was focused specifically on the provinces of Algiers, Blida, Boumerdes, Tizi ousou, Tipasa, Ain Defla, Tamanrasset, Djelfa, Ghardaia, Laghouat, Bouira, Bejaia, Medea, and Bechar. However, the primary focus was directed toward a survey of the 12 cybercafés and 11 libraries in the province called Blida.

Most libraries in the Blida province are municipal libraries, youth-house libraries, religious libraries, or small information services serving local associations. The advantage gained by focusing on Blida is that the province is rich in terms of the geography and the diverse combination of urban, suburban, and non-urban regions. Blida province also is affected by the terrorism and poverty phenomenon common to the Boumerdes and Tizi ouzou provinces. Blida also has universities and a segment of well-educated people combined with others who have a high rate of illiteracy. The province, therefore, seemed to be especially appropriate to this study.

The information obtained at the National Library and the Library of the Cultural Palace was quite valuable. The religious library site survey was aimed at the library of the ElFourkane Mosque in Mohamadia (Elharrach) City located in Algiers province and the Elghofrane Mosque in Ghardaia province. For NGO information services, the researchers conducted a survey of three associations in Ghardaia province – the Abou ishak association for the preservation of the heritage, the Tofola Saïda, and the Chiekh Kechar association library.

OVERALL COUNTRY ASSESSMENT

Overview of the Public Access to Information

Huge numbers of the Algerian population would enormously benefit if they could gain ready access to public information that would help them to improve their quality of life. Unfortunately, most people lack that access, and based on past experience, that lack is not expected to change significantly in the foreseeable future. The government has given no indication that this vastly important need will soon be met.

Cybercafés are among the few existing sources of access to public information, but they are not yet widely distributed throughout the country beyond

the cities and larger communities. Cybercafés commonly charge fees that most people in the remote and underserved areas cannot afford, but these venues still offer much more to the users than the public libraries offer. The unemployed, illiterate, females, children, and the elderly are clearly more deeply affected than most people by this information-access inequity.

NGOs have an excellent opportunity to overcome this inequity that the underserved people face, but they have not yet provided an adequate resolution. Private libraries are more efficient in terms of communicating with the public, but they still are limited by the lack of ICTs and connectivity platforms. However, some opportunities appear to exist given the funding that stems from the petroleum industry, although little has been provided to date. Also, Algeria would seem to be a ready market for ICT equipment and service providers.

Public libraries show little inclination to improve their position, but any change in this condition rests with the awareness and competencies of the library's controlling bodies.

Access, Capacity, Environment, and the Inequity Environment

Most of the venues that offer ICT connectivity and services are located in the larger cities and urban communities. Geographic constraints greatly hinder access to ICT service venues. The two significant mountain ranges, the huge Sahara Desert, and the inadequate public transportation system contribute enormously to the lack of access in underserved and rural areas. There is a need for capacity building programs and increased technological advances to overcome the constraints imposed by local geography and the lack of focus on underserved and remote areas. Local content at all sites and venues is limited mainly because of language barriers.

Social traditions strongly discourage females from using cybercafés, and females now constitute less than 30% of the cybercafé users in urban

areas and less than 10% in the rural and desert regions. However, females constitute a majority of the users when a woman operates the venue.

Cybercafés appear to be losing favor among large numbers of users because the venues commonly exhibit a low quality of management, lack technical assistance, and are perceived to lack moral values. There has been an increase in the availability of online pornographic sites, and the problem is compounded when coupled with an increasing number of students who pay the cybercafé owners and other users to do their homework.

Although the number of cybercafés has increased in the last five years, there is a trend toward the increased support of public libraries by the Ministry of Culture by allocating larger budgets and increasing the professional staff. There is also a trend toward opening the telecommunication sector by attracting foreign investors. Fixed-line telephone networks are aiding Internet access at the household level.

Information Needs of Underserved Communities

Categorically, the underserved and disadvantaged communities and groups need access to information that will help to improve the quality of their daily lives. Few of these people have convenient and direct contact with the government agencies and other sources of the information they need. Most must continue to rely on traditional word-of-mouth sources with the many problems that can entail. Underserved people often lack the means to learn about the programs and services that would most help them, such as the weather conditions, security, road and traffic conditions, electricity and gas supplies, civil rights and duties, school and work holidays, new initiatives, and civil unrest.

Public access could deliver immediate assistance to underserved and disadvantaged com-

munities by providing the following explicit information:

- Opportunities for employment, financial aid, housing, and social security
- Advice about the administrative folders (the “dossier administrative”) that people must prepare to get identity cards, passports, and similar documents
- Information about the postal bank statements (the “solde compte CCP”)
- Information about immigration and visa forms (especially Schengen)
- Support for elderly people who look to technology like Skype to keep in touch with family members in other countries
- Assistance to students for schoolwork who can gain much from the Internet sources

Economic, Policy, and Regulatory Environment

Algeria’s economy has long benefited from its agricultural base, but in recent years, the oil, gas, and petrochemical industries have been the greatest contributors to the economy. Agriculture and hydrocarbons contribute 7.7% and 45.1% respectively to the GDP. Overall, the fossil fuels energy sector is the backbone of Algeria’s economy and accounts for roughly 60% of the budget revenues, 30% of the GDP, and more than 95% of Algeria’s export earnings. The GDP growth plummeted in 2006 to just over 2%, but has since recovered to a significant degree.

Additionally, the government’s PSRE plan from 2001 and 2004 (US\$6.9 billion) and the PCSCE from 2005 to 2009 (US\$55 billion) were undertaken to promote an increase in the public sector revenues, especially those from oil and gas. Because of the recent rise in the prices of oil and gas on the international market, Algeria has realized significant financial gains.

Algeria has also seen significant advances in the telecommunications and civil construction

sectors that call for the country's products and natural resources, although to a lesser degree than the gains from the oil and gas exports.

Given this background on resources and revenues, the most important regulatory framework is governed by laws and regulatory controls that are the responsibility of the Ministry of Post and Information and Communication Technologies (MPTIC).

- In August 1998, the government published a law that allows for the creation of private Internet service providers (ISPs). Prior to that date, the CERIST research center affiliated with the Ministry of Higher Education was the only institution to grant access to the Internet.
- In February 2003, an executive report defined the missions of the MPTIC.
- An executive report issued in September 2004 created the Sidi Abdellah Cyber City.
- The most important official reports related to public libraries are those concerning two areas: The first is the Executif decret report N° 07-275 of 18 September 2007 (through the Ministry of Culture) published in JO N° 58 of 19 September 2007, and concerning the status of "bibliothèques de lecture publique" (public reading libraries); the second is the creation, organization, and composition of the management council of the National Library.

Because Algeria is not a member of the World Trade Organization (WTO), the country is not subject to the WTO's international trade rules. However, Algeria is a member of the International Union of Telecommunications, but the present policies and the most important regulatory controls are those defined by the international funds of the government and organizations such as the World Bank, the UNDP, and the European Commission.

Collaboration Practices That Exist Across Venues and Future Opportunities

Since 1962, there have been many reforms and programs designed to establish collaborative linking networks for the library system in Algeria, and nearly all have failed with the exception of a few scattered fragments; there is no public library network presently in place.

The only actual existing example is the Mzab private libraries network in Ghardaia operated by the Abu Ishaq Association Library that links 18 private libraries. These facilities feature a heritage of manuscripts and collections of local scholars, such as Tefayech, Elbikri, At Khaled, and Hadj Said. The first attempt to scan all ancient manuscripts contained in these libraries has been completed, and is still being cataloged before they can be made available to the public through the Internet.

The few relatively successful cases found were in academic libraries. One was the Union Catalog of Academic Libraries and was a project undertaken by the CERIST and 56 participating institutions. The project has subsequently been replaced by the RIBU (Inter-Academic Libraries Network).

The researchers concluded that two factors were key contributors to the relative success of these networking attempts. The first factor was the funding provided by the European Commission through the TEMPUS program. The second, was attributed to the dynamic effort of the librarian designated to direct the network. The manager of the central library of the University of Boumerdes was successful in lobbying her university staff and the other managers of other academic libraries, many of whom had already shown their support for the project.

The research team identified two scenarios as future collaborative opportunities:

- Public libraries and cybercafé networks should be proactive and promote public

access to ICTs. Public libraries could contribute library-science skills and provide an appropriate socially and officially legitimate framework. Cybercafés could house the computers, equipment, and facilities, and provide local access for the users.

- Private libraries and NGOs could work more closely to develop and institute a collaborative network while the National Library could play an important role as a facilitator and provide direction. Private libraries and NGOs have the important opportunity to closely aid the underserved and isolated populations. The National Library could serve as a government stakeholder with greater opportunity to obtain funds to improve access and connectivity platforms in the NGO centers and private libraries. This networking might help in the operation of the “bibliobus” plan (the mobile and bus libraries) to give isolated people access to ICTs, computers, and the Internet.

Buzz Factors

There is a strong perception throughout much of the Algerian population that libraries exist only to serve intellectuals, accommodate serious studies, and to serve students preparing for exams.

A contradiction exists in rural regions in which parents accept without reservation that their daughters can use public libraries but not cybercafés. The places that are viewed as socially inviting to adults include post offices, bus stations, business centers, and mosques, among others, but young people have no objection to meeting in cybercafés, public libraries, youth houses, cultural centers, and schools.

The government shows a preferential view for schools, “mediathèques,” and cybercafés, but public libraries are rarely mentioned, except in some prestigious cases such as the National Library or the Cultural Palace.

The government report that details the government’s 2025 ICT strategy and many other documents present a definite focus on defining “citizens” as individuals and not in the context of groups or communities. The concept of disadvantaged people does not officially exist in the government vocabulary. That is why many past and ongoing initiatives focus on at-home venues, and is said to be why the “Uusratic” program (PC for every family) proposed by Dr. Haichour, the Minister of ICTs at the time, failed. And yet, most programs refer, in one way or another, to the “access of every citizen to ICTs.”

Legitimate Use

Internet pornography is a major concern among the general public. Many people perceive Internet content to be invalid and in opposition to traditional books and library sources, and, therefore, is considered to be illegitimate. Libraries are considered to be the legitimate repositories and archives of ancient information and beliefs. Among the issues that challenge cybercafés is the commonly held perception that they are only a place for games and entertainment.

Shifting Media Landscape

The penetration of mobile telephony continues to increase at a rapid pace. SMS is fast growing as a popular means of communicating and has become popular as a marketing medium. However, the Algerian government’s security department is the only government agency so far to use this technique to communicate with citizens.

Weblogs and social networking are new phenomena in Algerian communities. But Youtube is quickly gaining popularity, especially when used to express individual opinions on political issues and to describe social issues. Mobile phones have become a creative way to market Youtube content.

Small parts of Youtube are disseminated through MMS, and this circulation encourages

people to visit the full video presentation on the Internet. Thanks to the high degree of competitiveness among mobile phone operators, Internet services were introduced as a feature of the bundled services offered. Some providers, such as Mobilis, are providing a smart tool called Mobiconnect, which is a key giving access to the Internet and which functions through a USB port. Laptop owners can then have a wireless laptop Internet connection without using a telephone landline, however, wireless access encourages individual access and does not contribute significantly to broader public access.

VENUE ASSESSMENT

Public Libraries

Algeria has 752 public libraries that exist in a variety of forms. There are municipal libraries in the cities and larger communities, and there are cultural center libraries, such as the Lamine Laamoudi in El-Oued city in eastern Algeria. In addition to youth-house libraries, there are libraries in some of the museums. Many of the Islamic cultural centers, such as the Abdelkrim ElMeghini Islamic center in Ain Salah city in southern Algeria, have libraries that feature religious content. The library of the Palais de la culture (the Cultural Palace of Moufdi Zakaria) is in Algiers. The most prominent library in the country is the National Library in Algiers.

The more important and best maintained and funded libraries, like the National Library, are in the capital city of Algiers, and only 40% of all public libraries offer ICTs. Unlike cybercafés, an average of 60% of all public library users is female. When asked what libraries features mainly attract users, the most common replies were silence and respect for the space; it is the best appropriate space to prepare for school examinations, they contain valid and useful content, and they offer the best place to improve a person's culture.

Nevertheless, many barriers still exist and tend to discourage people from using libraries. Those barriers lead many people, usually males, to prefer cybercafés. Once again, when asked to state why they elect not to go to libraries, the most common replies were that there were no libraries nearby, the operating hours were not convenient, too much bureaucracy, there were no Internet corners, the shelves lacked updated collections, and not enough services. Moreover, the staff in most libraries believes that their positions do not pay well enough, are a poor career choice, offer a poor social status, and that the libraries have inadequate budgets.

Access, Capacity, and Environment for Venues

In general, public libraries are perceived to appeal only to students and intellectuals. Other less literate people are more often attracted to cybercafés. In the cities and the larger communities, libraries are well known to the citizens, but are not always easy to reach given the poor state of the public transportation system. In addition, the procedure to gain access to a library requires the same complicated bureaucratic procedure that it takes to borrow a book. Although the services offered in most of the larger libraries are currently appropriate, many users say the services are inadequate to meet their needs and want more.

One of the most significant barriers to open access to the libraries is the restrictive operating hours. For some people, especially students, libraries are an important major service provider, but for large segments of the population, and especially people in rural and mountainous areas, there is a serious affordability issue when compared to other daily basic needs.

A librarian's professional status is typically viewed on a lower level when compared to other professions. They are less well paid, less well positioned in their professional relationships, rarely are well positioned in the core decision making

processes, and their library workplaces are not well funded. Collectively, these limitations offer little to attract bright young persons to become librarians. Furthermore, the total effect tends to impact user satisfaction in a negative way.

Nearly all public library collections contain very little locally relevant content. Collections are mainly composed of titles that come from Europe, and especially from France, or the Middle East, especially Egypt. Consequently, the end result has poor and limited relevance in Algeria. Capacity and relevance in Algerian public libraries is a very significant issue and challenge. Unfortunately, public libraries still receive very little support from the government because of the absence of national public library policy and a correspondingly low level of support from the general society because of the lack of collection donations and budgetary assistance by any of the stakeholders.

Revenue Streams for Publicly Funded Venues

The funding sources for public libraries depend on the type of library being funded. For a municipality library, the funds by law come from the municipal council. But the actual funds are not held by the library, and the library must submit purchase orders and bills that are paid by the municipality's financial administrator. The same process is used for cultural center libraries and youth house libraries, depending on whether they are funded either by the cultural directors of the province or the sport and youth affairs offices of the province.

For the largest libraries, like the National Library or the Palace of Culture library, the procedure is to allocate the funds from the central administrative offices of the Ministry of Culture.

CASE EXAMPLE 1: THE NATIONAL LIBRARY OF ALGERIA

Algeria's National Library occupies a strategic location in Algiers and has a dominating architectural presence designed to impress people, inspiring them to want to visit the facility. The building even has an underground parking garage, but for those who do not have an automobile, there is a bus station nearby.

This impressive new building was inaugurated in November 1994, but the nation's featured library has been in existence since 1835. This new building has 13 floors, 64,000 square meters of floor space, and a handsome modern architectural design. Its three arranged modules contain libraries for researchers, public reading, and a section for children added in 1998. The facility has a storage capacity of eight million titles and can accommodate 2,300 users at one time. A few rooms are reserved for ICT use.

By the end of 2003, the collections reached 84,192 titles with 37,331 for on-site use and 44,761 to lend out. The collection includes about 1,500 books in Braille for both internal and external use.

The library is officially open to all citizens, but in reality, most of the users are university students, teachers, and secondary school students. There is a choice of facilities and services from two Internet service centers similar to cybercafés and three main library departments – the public lending department, the periodicals department, and an audiovisual department.

CASE EXAMPLE 2: PRIVATE AND RELIGIOUS LIBRARIES

Overall Venue Landscape Assessment

The research team estimated that there are no more than 200 personal and private libraries in Algeria, excluding the religious libraries in various

mosques. According to the Ministry of Religious Statistics and a survey conducted by the researchers that covered 14 provinces, there no more than 300 libraries in mosques. These religious libraries are very often large and contain valuable collections that include ancient manuscripts, but the collections have little if any technological content.

No more than 10% of all the private libraries in the country have any ICT capability, and those that do are in private libraries. None were found in religious libraries. Religious libraries are only very rarely open to any of the public and access is closely limited to a select set of users, especially researchers and academics. In rare instances, some of these libraries might be opened to people with special search needs, for example people looking for a family genealogy.

Access, Capacity, Environment for Venues

In general, private and religious libraries are distributed in an irregular manner with regard to location and geography, and both the access and content are closely regulated. Commonly, they are open only to certain elderly people, intellectuals, and academics interested in history and religion. Major private and religious libraries in Algeria usually have a single staff manager called a “Qayim” who often also serves as the reference librarian, but many of them are not trained librarians. They are sometimes supported by one or two others when the library is either quite large or is equipped with a few computers.

Local content in religious libraries is often well represented in the collections, and the content is widely appreciated, respected, and considered to be sacred. There is strong support for these facilities from the national environment to ensure their sustainability and success. The population holds these libraries in high regard and sometimes provides financial assistance, but because they are

linked to a worship venue, the government has no policy regarding these libraries and does not provide any funding from the national budget.

Revenue Streams for Publicly Funded Venues

Most private and religious libraries receive their funds directly from the donor or through the religious commission that oversees the mosque, and the common practice calls for a year-end financial report to be submitted in addition to the traditional moral report; these reports are presented to the council of administrators. The private and religious libraries do not charge user fees, but religious libraries accept donations.

CASE EXAMPLE: THE LIBRARY OF DAR LACHACHI MOHAMED BELHADJ IN TLEMCCEN

The foundation of Lachachi Mohamed Belhadj founded a large facility called the Cultural Islamic Center in the city of Tlemcen situated at the extreme western extent of Algeria near the Moroccan border. Tlemcen has a population of 846,942 and is famous as the historical capital of the Almoravides dynasty. Mr. Lachachi, a businessman from Tlemcen, established the center to encourage people to learn, and to educate others about Islam (through the Quran and Hadith) along with the local cultural heritage of Tlemcen.

The center occupies a six-story building and is an impressive and extensive resource with these five major components: (1) A holy Quran learning center that features computer and audio-video facilities with a capacity of 500 seats, (2) a Mohamed el mourakouchi research center devoted to building a core database in various fields of Islamic sciences and Tlemcen history, (3) three conference rooms, (4) an Ibn Merzouk

El Hafidh library with a 300-seat reading room and about 200,000 titles in literature, Islamic studies, languages, history, geography, philosophy, technology, arts, and humanities. An important collection was donated to this section from the personal library of Dr. Boumedienne Bensmaine of Oran, and (5) the Ahmed Benzekri library is a lending service with 500,000 books, newspapers, and journals in Arabic, French, and English. The Ahmed Benzekri library is automated with Winisis UNESCO software, and also contains a collection for children in Arabic and French. The library includes a set of electronic materials (floppy disks, CDrom, VHS, and records of conferences) and a free photocopy service.

In an interview with Mr. Lachachi, he said these libraries were intended initially to serve researchers and historians, but the center is now open to the public.

CYBERCAFÉS

Overall Venue Landscape Assessment

There are an estimated 7,000 cybercafés in Algeria, and the number has continued to increase extraordinarily each year. More than 70 percent of the users are male. Even though Cybercafés charge service fees, they are the most popular public information access venue in Algeria because they offer simplicity, Internet connectivity, and a sense of intimacy and freedom. Also, they operate with virtually no intellectual or educational barriers although there are some usage constraints because not many potential users understand enough English to take advantage of the Internet. Some users complain about the noise and interruptions from children playing games on line.

Access, Capacity, and Environment for Venues

Cybercafés operate for profit in the private sector and the owners and managers try to locate as close as possible to their targeted customer base and the more profitable and successful venues are often located near schools, especially secondary schools and CEMs. An enticing advantage that these venues have over libraries, is the absence of complex administrative procedures that many library users complain about. Some cybercafés sometimes have so much traffic that customers must wait to use the services.

Internet access is the basic service offered by most cybercafés, and large numbers of people use cybercafés on a regular basis even though significant segments of the population have a perception that the information gained from the Internet is invalid. The quality of the connectivity offered by many cybercafés is poor, and connections are sometimes interrupted to the extent that many people who can afford to own a computer avoid cybercafés and access the Internet from other locations.

People living in small villages in outlying provinces such Yakouren, Naciria, and Dellys, frequently are not able to use cybercafés, especially at night because cybercafés in smaller communities commonly close before sunset. But the people who need access are limited because they have to work when the cybercafés are open during the day.

Regardless of what constraints the people might face, more and more people are finding value in the services available to them on the Internet even though they could realize far greater benefits if more web sites were available in the Arabic and Berber languages. At the present time, very little locally relevant content is available to Algerians in any language other than English and a very few other European and Asian languages.

Much of the poor quality of local and government websites is caused by server problems created by hackers and inadequate maintenance.

Some local web sites are static and others are dynamic, but nearly all lack regularly updated content. Other sites have temporary URLs or inadequate archives. The web sites for some municipalities compete with amateur sites that, in many cases, offer informal, unofficial, and even invalid information. Many Algerian websites are presented either in Arabic or French, but never in both languages. Consequently, disappointed users seek locally relevant information through international agencies and information sources such as the web sites of the French embassy; UNDP, or the World Bank.

In general, the cybercafé ICT venue concept has been successful in Algeria, and is supported in the national environment. Business owners and operators recognize the potential of cybercafés and consider them to be a moderately good investment. Teachers and families, especially in the more heavily populated northern part of the country and in the larger provinces, encourage youth to use cybercafés for homework and entertainment. Despite the support the government provides to cybercafés, various governmental agencies impose more and more regulatory constraints and are applying increasing pressure to extract tax revenues from the venues. In response to these concerns, the researchers found that more than 50 percent of the cybercafés in 13 provinces surveyed are not registered with the national *Registre de Commerce*.

Revenue Streams for Publicly Funded Venues

The Algerian government does not fund commercial entities, except in some special cases such as the youth groups supported by the ANSEJ agency called the *Agence nationale pour le soutien des jeunes entrepreneurs*, which provides aid for young entrepreneurs. When young persons present a project that is accepted by the ANSEJ, the project receives a bank financing guarantee and the project also is exempt from taxes for the first three years of operation.

CASE EXAMPLE: A CYBERCAFÉ IN BORDJ MENAIEL

Bordj Menaiel is located in northern Algeria 69 km from the capital of Algiers and is one of the most important municipalities of the Boumerdes province. The city was founded in 1871, and in 1998, the population was estimated to be 53,000. Bordj Menaiel has one municipal library, one youth house library, one professional education center library, 36 school libraries, and about 15 cybercafés.

For this study, the researchers selected the cybercafé situated in the Road of La Mosquée near Tamèche. This business was created in late 2004 as a publicity and advertising agency, but the business failed because it did not meet local needs. Then two young females converted the business to an Internet cybercafé with eight computers, and the site attracted students who used the venue for schoolwork. Since then, the business has expanded and prospered when other businesses opened nearby and used the services. The two women soon hired another woman to work with them.

NGOS

Overall Venue Landscape Assessment

The researchers estimated that 2,739 NGOs in Algeria offer information services through reading rooms and Internet centers, and some also have libraries. Of the total number, 2,200 are in urban locations and 539 in non-urban areas.

Throughout Algeria, gender has always been one of the most prominent inequities, and 80 percent of all venue users are male. While the customers often use the venues for web browsing, e-mail, and chat sites, the two most common search categories are education and personal social sites. Many of the users are highly educated and

usually no older than 25. Most are in the medium income bracket and the medium social circles.

Access, Capacity, and Environment for Venues

NGO information services and libraries are available to the public, but many people are not aware of the venues and the services offered. The operators may not always market the venues well or adequately inform potential users of the services and how they can provide useful information. Unfortunately, many NGOs offer little or no ICT capabilities, and some are limited because of financial constraints. Often computers and Internet access are not directly available to the customers who must then request the operator to conduct a search and explain the result to the customer. Potential users often find this approach to be too discouraging and do not return to the venue. Commonly, no technologies or ICT services are available in the venues, and some estimates indicate that no more than 15 percent of the venues have any ICTs.

Literacy and moderate levels of computer skill usually determine who values the information sources and who accesses the venues. Many users typically are researchers, educators, business operators, and people with a similar capacity to use ICTs, but capacity building policies and programs are an urgent need among the underserved and remote communities and groups.

Language is a common inequity variable with regard to information access. For example, many people in the northern regions of Algeria communicate and work almost exclusively in French, and that discourages many Arab and Berber-speaking people from using the information venues. The issue is compounded when so little locally relevant online content is available in either of those two languages. The overall technological and information access environment suffers correspondingly, and when NGOs need contributions to supplement

their operating budgets, they seldom get any significant favorable response.

Revenue Streams for Publicly Funded Venues

Some organizationally owned libraries receive their principal funding allocations from their members and sometimes from interested non-member donors. In the case of religious libraries, annual financial reports and moral reports are submitted to a general meeting of the library's controlling body.

International agencies are becoming more and more important as financial sources for NGO and private facilities, and the allocation process is often more complex and carefully guided. Many such agencies do not provide cash or negotiable instruments directly to the venues and typically require carefully prepared records of expenditures based on purchase orders, invoices, accounting reports, and audits.

Case Example: Reading Centers of the ToFola Saïda Association

ElAtteuf is the largest and most important city in the Mزاب region that lies 600 km south of Algiers. The city traces its origins back to its founding in 1012, and its economy has always been based on agriculture and commercial activities. The population is about 14,000 and the young people in the population are attracted to and actively support a very dynamic association called Tofola Saïda (Happy Kids). The association was created in 1992 by Salah Boubekeur, a sports teacher at the secondary school. The intent was to create a framework to let young people express themselves and develop their personal capacities and skills.

The association offers a variety of educational services, but the association's reading centers have proved to be so successful that they have gained national recognition. Since 2000, the centers have provided well-furnished reading rooms with open-

shelf collections. Staff members are on hand to help the children find books, read stories, and learn how to abstract a book. Because of local traditions, children who reach the age of 10 are separated by gender and go to segregated reading rooms.

The reading centers are open and operate during the summer when the schools are on holiday. Books are obtained from a variety of different sources, and parents and children often make donations, but most are provided by the National Library. In addition to the reading centers, the facility offers year-round public library services and Internet access.

The municipality of Elatteuf and the governors of Ghardaia Province have contributed to the success of this initiative. In 2002, 400 children used the centers and read 550 books, and then in 2003, 700 children used the centers and read some 1,050 books. The numbers increased again in 2005 when 1,350 children read 1,670 books.

As an outgrowth of this success, the association has sponsored a three-day national scientific meeting each March since 2006 in the city of El Attouf. Representatives from the academic world discuss the benefits of reading, the state of children's literature, and related topics. This event has been effective in introducing the values of literature and reading in the citizens of Elatteuf. A highlight of the three-day assembly is a very popular reading workshop presented in an open space in the central communal marketplace. All children are invited to select a book, read it, and present an abstract. The book then becomes the property of the child.

Comparative Venue Overview

The administrative complications that users encounter in public libraries are making people seek the simplicity of access common to cybercafés where it is far simpler access the services. In addition, the large number of cybercafés compared to libraries and other venues usually means that

users can find easy access closer to their homes and employment. Moreover, cybercafés generally are quite pragmatic when responding to requests for the services. The increased level of service is usually attributed to the venues' position as a profit-making venture. The customers appreciate the ready availability of popular Internet features such as browsers, search engines, and download tools.

The information delivered through the Internet has had a significant impact on the decision making processes in the general population while most public libraries and many mosque libraries remain dominated by students who use the collections and facilities for schoolwork.

SUCCESS FACTORS AND RECOMMENDATIONS

The following success factors were identified during the study:

- The most critical information needs of the underserved communities and groups are not being adequately met by the present public access venues. The three areas that most urgently need attention are: (1) the need to acquire more effective and reliable funding sources among the various government agencies; (2) the need to find a more effective and efficient means to disseminate current information regarding job opportunities, financial aid, housing, social security, and business opportunities; and (3) the need to simplify the process to acquire administrative documents that people must prepare to obtain important items such as identity cards, passports, and visas.
- The government must provide policies and programs for capacity building and technological awareness, especially for underserved and rural communities and groups

- and provide them greater access to cybercafés, libraries, and support organizations.
- The venues themselves need greater government and private assistance regarding funding, infrastructure, hardware, software, and well-trained and knowledgeable staff. Many potential users lack access to needed services because of the distances to the venues, high fees, and cultural inequities.
- An enormous inequity exists between the urban and rural regions, especially for those people who live in the mountains, desert, and other isolated areas.
- Increases in the ICT market in Algeria have improved the nation's technological capacity, but barriers to efficient and effective ICT access remain in some of the most ordinary life factors such as education, employment, marketing, health, and public welfare.

The following is a series of recommendations the researchers identified.

The government agencies in general and the Ministry of Culture in particular, need to implement a policy and strategic plan to provide more effective and efficient development for the public library system nationwide. For this policy and strategic plan to have value, the government must accomplish the following:

- Reduce the administrative procedures and processes needed to provide visitors their reader cards, and give priority to unemployed and impaired people.
- Establish an effective and efficient collaborative means to link the public libraries through an ICT-based network.
- Encourage public-private partnerships to support public information venues.
- Use the mobile bus system of the National Library as a model to develop ICT-equipped mobile cybercafés.

- Provide better methods to train librarians and staff, especially with regard to communicating with users and educating them in building information search methods and ICT skills.
- Encourage implementation of the 1994 IFLA/UNESCO Public Library Manifesto.

There is a need to promote the concept of public telecenters nationwide. This action needs to include the support of several key agencies beginning with the Ministry of ICTs, the Ministry of Solidarité, the Ministry of Culture, private sector Internet service providers (especially EEPAD and Algerie Telecom), and local NGOs devoted to helping underserved communities.

To make information sources and venues more valuable, they must be accessible at little or no cost, especially to the underserved and remote communities. The venues need to be established in or very near public offices such as post offices, and banks and in high-traffic locations like bus stations, markets, stadiums, mosques, cafés, and similar sites.

The government, through the Ministry of ICTs, must encourage far greater government and private technological investments and promote wireless technologies, especially in the mountains, desert, and other isolated areas.

The Government Internet Network (RIG) Project of the Ministry of ICTs needs to become more proactive in developing and supporting a practical form of e-administration.

CONCLUSION

The study team formulated the following key observations and recommendations regarding public access to information and communication venues in Algeria.

For public access to information and communication, especially in underserved communities, most people use cybercafés and municipal and

public libraries. Underserved communities lack widespread public access to information and communication venues for a variety of reasons. The public venues generally have limited funds, are concentrated in urban areas, and are often subject to restrictive regulatory issues that limit the dissemination of information about job opportunities, financial aid, housing, social security opportunities, and administrative documents such as identity cards and passports. Some respondents voiced a concern about what they perceived to be 'bureaucratic' constraints.

The venue locations often are not readily accessible to much of the population. Many people in remote and rural areas often must travel great distances to reach a venue, while others face social, political, and economic constraints.

The increased availability of ICTs and Internet connectivity is viewed as a welcome opportunity for the public to gain a much greater access to public information, and the study team concluded that Algeria holds great market potential for ICT providers.

Several recommendations emerged from this study of the ability of the Algerian people to access public information. The Algerian Ministry of Culture should institute a well-designed strategic plan of public library development that will address the following issues:

- Significantly reduce the mass of the administrative procedures that public libraries presently impose on users who want to obtain a reader card, and give priority to unemployed and physically impaired people.
- Design and introduce a functional concept of public library networks.
- Encourage public-private partnerships in support of public information venues.
- Establish a mobile bus system as a library equipped with a mobile cybercafé and use e-tuk tuk as a model.

- Provide greater capital investments and allocations in the education of library staff. Improve the training methods regarding information and ICT skills.
- Further encourage the implementation of the 1994 IFLA/UNESCO, Public Library Manifesto.

Furthermore, the appropriate national government agencies should complete the following important actions:

- Promote the concept of public telecenters nationwide. This must be conducted in partnership with the Ministry of ICTs; the Ministry of Solidarité; the Ministry of Culture; private commercial Internet service providers (especially EEPAD and Algerie Telecom); and the local NGOs devoted to help underserved communities.
- Either make information sources and facilities free, or ensure that the fee structure will permit the greatest possible number of low-income users to be able to gain access.
- Establish public access venues in readily accessible locations, and coordinate this effort with the appropriate governmental agencies such as the Ministry of ICTs, the Ministry of Interior Affairs, and the Ministry of Culture. Make venues an integral part of sites such as public offices including post offices, banks, and municipal service facilities and in high-traffic locations such as bus stations, markets, stadiums, mosques, and cafés.
- Act through the Ministry of ICTs, to encourage private investments and promote the widespread installation of wireless technology in rural, mountainous, and desert provinces and regions.

Chapter 34

Public Access ICT in Egypt

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EXECUTIVE SUMMARY

Egypt is a vibrant modern nation and has been a major contributing influence on the world scene for thousands of years. In addition to its prominent placement in the northeastern reaches of Africa, and its historical background there, Egypt harbors a strong relationship among the Middle Eastern Arab nations, as well as with its neighboring countries in North Africa.

The rapidly growing population is estimated to have reached 80 million. Importantly, the limited amount of arable land and the country's huge dependence on the Nile River have always exerted an enormous influence on the population, and that is no less true today as it has always been – those features of the country's arid landscape continue to cause a high degree of stress on the people and the country's resources.

During the past several years, Egypt's government has invested heavily to create a physical infrastructure that encourages economic growth and invites direct foreign investment. In that

respect, the government has correspondingly invested heavily in information and technological developments and has achieved an excellent return on that investment. As a key aspect of those advancements, the government has initiated an e-government program to help transform Egypt into an information-based society. Given this favorable political impetus, four key venues for public access to information stand out and were examined during this study: 1) public libraries, 2) academic libraries, 3) IT clubs, and 4) cybercafés. These four venues cover the spectrum of public access portals in Egypt and are perceived to be major contributors to public access to current and relevant information. Additionally, these venues have the potential to expand and more effectively meet the public's information needs. The study focused directly on how these venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

Egypt is one of 25 countries participating in this international study that was designed both to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic,

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political, and regulatory framework. The study placed an emphasis on the information needs of underserved and remote communities.

Methodology

From the outset in 2008, the study focused on four public access venues and was completed in two phases. The first phase aimed at obtaining a general understanding of the spectrum of activities that pertain to public access. The researchers interviewed users and key stakeholders associated with the key venues and, subsequently, conducted field visits in order to, first, gain an initial understanding of the technological landscape and, second, to collect literature pertaining to public access to information and ICTs.

During the second phase of the study, the team conducted detailed field surveys in 49 venues (seven public libraries, ten academic libraries, eight IT clubs, and 24 cybercafés), in eight governmental units covering both urban and non-urban locations.¹ A total of 186 surveys from operators, major stakeholders, and users were completed and analyzed. The results of several user focus groups were then used to verify the survey findings.

Findings

The Egyptian political sector provides a high degree of support for public access venues, and that support serves as a favorable foundation for the success of those venues. The support of Egypt's Ministry of Communications and Information Technology for IT clubs, and for public access in general, are reflected in the rapidly increasing number of new venues that have appeared to serve the public.

- Despite the strong support from the government for public access to technology-based information and communication venues, the public most commonly accesses information through mass media

and other means, especially through television and by word of mouth. This point is particularly evident among lower-income and underserved people, rural people, and those in smaller communities far removed from urban centers.

- Public phone shops have become quite important in the way individuals communicate, although the increasing emergence of mobile phones is having a huge effect in the decreasing roles these shops play.
- The lack of appropriate sustainability models have also had a negative effect on the quality of service among the different venues, and may be due in part to internal venue-management issues.
- Capacity building programs have been widely introduced in Egypt, and have mainly targeted young adults and youth. While these programs have increased the general awareness of ICTs in various segments of the society overall, high illiteracy rates and the limited awareness of the importance of digital ICTs have contributed to the slow pace of technology penetration, especially in the low-income sector.
- Relevant content, particularly any content that focuses on local needs, is quite limited, which has further contributed to the limited adoption of technologies across all segments of Egyptian society.
- The hours of venue operation, the expense of transportation, and the cost of using the venue services all contribute to limiting access to the venues. While these limitations are seen to be changing in some urban locations (in part because of changes in the management of some public access venues), the changes have not appeared in underserved areas, low-income areas, and rural regions.
- What are commonly considered to be the two most important factors affecting access to public information venues are the

educational level and gender of potential users. The gender constraint is a reflection of cultural issues that restrict females from accessing certain types of venues, such as cybercafés, especially during late hours. The strong influence that ICTs and libraries have on education has also driven venue operators to focus on those individuals still in school and on adapting capacity-building programs.

Success Factors and Recommendations

The favorable legal and regulatory environment surrounding public access to information venues flows from the strong support of the nation's government. Foreign investment in the telecommunications sector has increased, aiding the development of infrastructure and contributing to the growth of landline and mobile services, although penetration remains low. By increasing the public awareness of the role of ICTs in public access to information, and in using ICTs as a tool to access that information, several success factors and recommendations have emerged from this study.

- Create collaborating networks among the public access venues with the goal of helping to increase the sharing of knowledge among these venues. The networking process will result in a better application of resources, creation of support networks, and creation of a broader set of services relevant to local communities. These changes, in turn, will help create community-relevant content and the development of sustainability models.
- Increase the capacity of operators to work as information intermediaries. Operators should be able to bridge the gap between the information sources and the users, and to supply relevant information to the public by understanding their requirements

and by seeking the appropriate knowledge. The operators and intermediaries should also be able to aggregate the community's needs and requirements to drive creation of more relevant content.

- Develop practical methods to create appropriate content. Then, present those methods so they become a focus to support further development of public access venues, both through systematic methods, such as governmental portals and digitization programs, and through innovative means to understand and seek community-relevant knowledge.
- Increase the amount of digitally born content present in libraries and online, and develop ways to share and integrate basic library activities with new technologies at public access venues. When this goal is accomplished, it will increase the relevance and accessibility to libraries.

Country Overview

Egypt occupies the north-eastern corner of the African continent and, in keeping with its historic position, the country owes much of the development of its language, culture, and heritage to its strong relationship with the Arab world that extends all across Africa and deep into western Asia. The economy of Egypt has always depended on agriculture, but there have been rapidly evolving conditions that have significantly altered that dependency. The economy of the country is now heavily supported by the contributions gained from industrial activities, natural resources, and the Suez Canal. Egypt has witnessed an increase of direct foreign investments in recent years; and also, in the last few years, the Egyptian stock market boomed and showed consistent growth until the global downturn of 2008.

Over the last 30 years, and more so in the past decade, successive governments have reformed the highly centralized economy inherited from the

Nasser era. Although deregulation has affected economic activities, the government continues to provide sizable subsidies for basic needs, and the result has contributed significantly to the ongoing budget deficit. While the government points to an overall improvement in the economic conditions, the broad changes in the economy have not yet been felt by much of the general population who struggle to meet basic needs. 20% of the population is well below the poverty line.

Geography

Egypt is located in the northeastern corner of Africa, bordering Libya to the west, Sudan to the south, the Mediterranean Sea to the north, and the Red Sea to the east, and extends eastward to include the Asian Sinai Peninsula. The majority of the population lives along the Nile Valley and the Nile Delta, which collectively represent about 5.5% of the total land. Most of the rest of the nation is composed of vast desert plateaus. The fertile Nile Valley contains most of the economic activities and also is where approximately 32% of Egypt's agriculture² is located.

Almost 58% of Egypt's population is considered to be rural, most of whom reside in the agricultural areas of the Nile Valley and the Delta. Most of the rest of the population lives in Alexandria and the greater Cairo area. A very small number of people are scattered throughout the vast and remote desert regions and Sinai.³

Political and Governmental Divisions

Egypt is a multiparty democratic republic, dominated by the National Democratic Party (NDP) under the leadership of President Hosni Mubarak, who has held the office since 1981. The president appoints the heads of government and cabinet of ministers. Prime Minister Ahmed Nazif has been in office since 2004. The legislative system is administered by the People's Assembly and the

Advisory Council, whose members are elected by popular vote in their respective electoral districts.

Egypt is divided into 28 administrative divisions, or governorates, two of which were added as recently as 2008. There are six governorate cities—Alexandria, Cairo, Giza, Luxor, Port Said, and Suez. The five frontier governorates have the largest land area, but have the least population. The New Valley region has a population density of 0.4 inhabitants/km² compared to almost 2,500 inhabitants/km² in Cairo, where the Kalyoubia district (part of the greater Cairo area) is estimated to have 3,400 inhabitants/km².

Egypt has distinct spatial regions that reflect the population and economic distribution: 1) Greater Cairo, which includes the capital city and surrounding urban areas, spanning five governorates, and is central to government and commerce alike, 2) Alexandria and the North Coast, 3) Upper Egypt, representing the Nile Valley, 4) The Nile Delta, and 5) Sinai and remote areas, which includes both governorates of Sinai and the eastern and western desert areas of Egypt.

Demography

Of the estimated 80 million⁴ people, almost 99% are Egyptians and the remaining 1% is composed of Nubians, Bedouins, Armenians, and various European ethnicities. The age structure data indicate that 32.2% are 14 years old or younger, 63.2% are between 15 and 64 years old, and 4.6% are 65 and older. More than 50% of the population is below the age of 25.

Ninety percent of all Egyptians are Sunni Muslims, while 9% are Copts and the rest Christians. Arabic is the predominantly spoken language, but English and French are widely understood, mostly among the better-educated people. The low level of literacy all across Egypt is seen as a major problem facing the country, and the literacy rates for persons 15 and older are estimated to be anywhere from 38% to 56%.

Egypt's rapidly growing population is estimated to be 80 million. Importantly, the limited amount of arable land and the country's huge dependence on the Nile River continue to exert an enormous influence on the population. The government struggles to meet the rapidly increasing demands of this burgeoning population and has introduced economic reform to alleviate the problem.

Egypt's government has invested heavily to create a physical infrastructure that encourages economic growth and invites foreign direct investment. In that respect, the government correspondingly has invested heavily in information and technological developments and has achieved an excellent return on that investment. As a key aspect of these advancements, the government has embraced an e-government program to help transform Egypt into an information-based society. Given this favorable political impetus, four key venues for public access to information stand out and were examined for this study: 1) public libraries, 2) academic libraries, 3) IT clubs (a tel-center model that provides citizens with access to digital ICTs and allows them to use ICTs as a tool for development), and 4) cybercafés. These four venues cover the spectrum of public access venues in Egypt and are perceived to be major contributors to public access. Additionally, they have the potential to expand and more effectively meet the growing information needs of the public. The study focused directly on how these venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

The government reached a key milestone in the effort to move towards a knowledge and information-based society when it established the Ministry of Communications and Information Technology (MCIT) in 1999 under the leadership of H. E. Ahmed Nazif, who became Egypt's prime minister in 2004. However, despite the significant growth in the economy over the last few years, the vast majority of the Egyptian population still

has not felt any noticeable benefits from these reforms. With the global economic volatility, the number of Egyptians considered to be living in poverty is expected to increase even higher than the current estimate of 20%.

METHODOLOGY

This study, which began in 2008, was divided into two phases. The first phase was structured to provide a general understanding of the spectrum of activities that pertain to public access to information in Egypt.

During the second phase of the study, the team conducted detailed field surveys in 49 venues (7 public libraries, 10 academic libraries, 8 IT clubs, and 24 cybercafés), in 8 regional political subdivisions (governorates), covering both urban and non-urban locations.⁵ A total of 186 surveys from operators, major stakeholders, and users were completed and analyzed. The results of several user focus groups were used to verify the survey findings.

The field visits enabled the research team to gain insight into the various venues, their locations, the degree to which they serve the needs of the users, and to collect literature pertaining to public access and ICTs in Egypt.

Team Qualifications

The research team was led two people who have a wide range of experience in ICTs, specifically in how those technologies can affect development in Egypt. During the first phase of the study, a practitioner with an expertise in libraries assisted the core team. In the second phase, a number of field workers assisted in the surveys.

As the lead researcher, Nayer Wanas has experience in using ICTs for development and has participated in several research and assessment studies in Egypt and elsewhere in the Middle East and North Africa. He has worked several

programs using ICTs to support socio-economic development in Egypt and conducted research on telecenters throughout the Middle East and North Africa. Mr. Wanas has published several papers and publications related to ICTs as they apply to development programs.

Karim Kasim is a specialist in the full-scope telecenters in Egypt. He has been involved in telecenter development and operation since they first were introduced into Egypt and he has also managed telecenter support networks in Northern Lebanon.

Literature Review

The researchers conducted a literature review as a fundamental part of the study, and examined the documents and websites relevant to the general scope of the study. They found that with regard to Egypt, very little applicable, accurate, and timely documentation exists.

Among the venues studied, the most experience-related documentation dealt with IT clubs, although most of that documentation has never been published. However, the research team was allowed access to the unpublished material. The researchers also found that a few related studies do exist and address the access to ICTs in Egypt.

Venue Selection

Over the decade that preceded the start of the study in 2008, Egypt's government began to invest heavily in creating a physical infrastructure that encourages economic growth and invites direct foreign investment. In support of that overall effort, the government correspondingly invested heavily in information and technological developments and has achieved an excellent return on that investment. The government then embraced an e-government program to help transform Egypt into an information-based society.

Given this favorable political impetus, four key venues for public access to information stand

out and were examined for this study: 1) public libraries, 2) specialized and academic libraries, 3) IT clubs, and 4) cybercafés. These venues cover the spectrum of public access venues in Egypt and are perceived to be major contributors to public access. Additionally, they have the potential to expand and more effectively meet the information needs of the public. The study focused directly on how these venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

- **Public Libraries:** The public library system in Egypt has roots that extend back to the ancient world, and the library of Alexandria is still regarded as a landmark in human history. Today, the general public uses libraries as the key venue when seeking access to information. However, the past half-dozen decades have seen an unfortunate and huge decline in the role of public libraries in Egypt. Only recently have efforts been made to revitalize the public library network, and Mrs. Suzanne Mubarak, the wife of Egypt's President, champions this effort. The integration of various ways to improve the library system, including introducing ICT applications and supporting shelved books, is reflected in the large influx of users who frequent the public libraries. Other supporting programs, such as the "عيمق للى نى ارق لى" (reading for everyone), also help to place books back into the hands of the public and have reshaped the use of books in Egyptian society. All in all, public libraries remain a destination that many perceive to be a valuable public source of information.
- **Specialized and Academic Libraries:** Specialized and academic libraries differ from public libraries in that they address a particular audience that has a narrow or specialized area of interest. The majority of the users are university students and

researchers. There is a widely held perception that the public libraries focus on children and teenagers, while there is a corresponding perception that the specialized and academic libraries represent a venue sought by young adults, professionals, and researchers. Unfortunately, the specialized and academic libraries suffer from many of the financial, operational, staffing, and general infrastructure ills that are commonplace among the public libraries. Regardless, the specialized and academic libraries integrate additional services and activities to improve their relevance to the limited communities they serve.

- **IT Clubs:** Information technology clubs are an especially important segment of the national initiative to transform Egypt into an information-based society. The IT clubs have the support of the Ministry of Communication and Information Technology and are a telecenter model that provides citizens with access to digital ICTs and allows them to use ICTs as a tool for development. The clubs also are designed to be a source of relevant e-government information and a means to drive socio-economic development using technology. A primary goal of the club program is to facilitate the access of information by the general population.
- **Cybercafés:** Cybercafés provide a community service by serving as venues that offer access to ICTs. These venues are commercially operated in the private sector for profit, in contrast to the IT clubs, and continue operating within the constraints of market demand. There is no collective governing body for cybercafés, and they have mushroomed in most communities, representing a venue for individuals seeking access to ICT technologies.

There were four venue categories that were excluded from this study: 1) the Cabinet's Information Decision Support Center (IDSC) offices, 2) cultural palaces, 3) State Information Service (SIS) offices, and 4) wi-fi hotspots.

The IDSC offices are located in the capital cities of the governorates and have a limited user base. For the most part, the offices target civil servants and deliver capacity-building programs and governmental information. The general awareness of these offices is limited. They also act as data-collection points for government decision makers, and the information they gather is processed and made available online on the IDSC portal.⁶

Cultural palaces are administered by the Ministry of Culture, and are a public service to support youth. They focus on arts and the theatre rather than providing public access to information.

The SIS offices are similar in their role to the IDSC offices serving primarily as an information-gathering venue, as opposed to being a venue that provides information to the public. The collected information is centrally available on the SIS portal.⁷

Wi-fi hotspots are rapidly appearing in many urban locations and cater most often to young professionals who access ICTs using personal devices. Mobile providers have also introduced 3G services commercially and at affordable prices, but the providers do not operate as open venues for public access.

Inequity Variables

Six major inequity variables were considered during this study:

- Socio-economic factors limit vast numbers of the population in their ability to access information in the public venues. The limitations extend beyond the availability of financial resources – many people do not even have the time available to access information they may well need. Many low-

income families struggling to meet their economic challenges expect children and young adults to work to help support the daily living requirements. Many encourage their children to drop out of school in favor of generating disposable income. This combination of issues adds even greater challenges facing the overall needs of the communities. Middle-class communities are better situated to make use of public information access and more commonly possess the means to use ICTs. People in the more advantaged socio-economic communities usually opt to have personal access to ICTs, hence, they frequent public venues less often.

- Educational level has an exceptionally strong influence with regard to who uses ICTs, although this not directly proportional across all age groups. With high levels of illiteracy in Egypt (estimates range from 38% to 56%), a significant proportion of citizens are left without reasonable access to ICTs. The level of education bears a positive correlation to the low ICT literacy rates in Egypt. The integration of ICTs into the educational system is helping mitigate this discrepancy.
- Age is a particularly important factor with regard to ICT access in Egypt. With the majority of the population under the age of 30, there is a huge political drive to support the needs of youth and young adults by increasing their capacity to access information via ICTs. The general perception of most venues studied is that they are directed toward youth and young adults, even more so than public libraries.
- Gender remains an important factor in accessing information, with far more restrictions placed on females than males. Males have significantly greater access to alternative means of entertainment, especially to societal freedoms in general. In addi-

tion, educational opportunities for females are much more restrictive than for males. This gender imbalance is hugely apparent among the people who frequent cybercafés, where male users far outnumber females.

- Location strongly affects public access to information because the vast majority of venues available to the public are in Cairo, Giza, and Alexandria. Alexandria, despite being the second most populous city in Egypt, has even far fewer venues than the greater Cairo area. In a distant third place are the other cities across the rest of Egypt. Townships and remote areas have very few venues or have none at all.
- Few public venues, and not just those related to information, communications, and ICTs, are equipped to meet the needs of people who have special needs, or who have personal accessibility issues. Only recently has there been any particular focus placed on the needs and requirements of these individuals.

Data Collection

Data collection for this study, which began in 2008, was completed in two phases. In the first phase, the researchers were tasked to review the full spectrum of activities that pertain to public information access in Egypt. As such, the team conducted interviews with individuals to assess their knowledge of specific venues, as well as field visits to gain insight into the various venues, their locations, and the degree to which they serve the needs of the users. They found that with regard to Egypt, very little applicable, accurate, and timely documentation exists.

Among the venues studied, the most experience-related documentation dealt with IT clubs, although most of that documentation is unpublished, but the team was allowed to review the unpublished material. The researchers also found

that a few related research studies exist and address the general access to ICT in Egypt.

The team followed the literature review by interviewing individuals to gain an overview of the spectrum of public access venues throughout Egypt. During the course of these interviews, the researchers visited key venues, most of which were in the greater Cairo area. IT clubs were the least targeted venues because the research team had been heavily involved in IT club activities.

For the second phase of the study, the team conducted detailed field surveys in 49 venues (7 public libraries, 10 academic libraries, 8 IT clubs, and 24 cybercafés), in 8 governmental units (governorates) covering both urban and non-urban locations. A total of 186 tailored surveys from operators, major stakeholders, and users were completed and analyzed. The results of several user focus groups were used to verify the survey findings.

OVERALL COUNTRY ASSESSMENT

The publicly accessible information landscape in Egypt is complex and virtually unique. Different key institutions, governing bodies, and communities shape and influence the landscape at the national level, while the readiness, awareness, socio-economic conditions, education, and cultural backgrounds of individuals influence the landscape at the community and neighborhood level.

The government made a concerted effort to move towards a knowledge and information-based society when it established the Ministry of Communications and Information Technology (MCIT) in 1999. But despite the significant growth in the economy over the past few years, the vast majority of the Egyptian population still has not realized many noticeable benefits from the government's reforms, even though Egypt's technological infrastructure for ICTs is one of the most well developed in the entire region and

experiences consistent growth. Several initiatives lead by the MCIT have been influential in the growth of the ICT sector in general, and have also supported public access through the established venues. These initiatives also support the development of the e-government program, aid in creating digital content, and favor the national ICT capacity building programs.

While the government both initiates and assumes a key role in most of these activities, the activities are mainly conducted at the working level by partnerships and alliances in the private sector's Corporate Social Responsibility (CSR), civil society organizations, or international development agencies. The presence of influential parties and individuals, such as those who have shown strong support for the public libraries, helps create momentum for establishing public access venues.

Nationwide, Egypt has a huge venue network composed largely of 1,127 public libraries, 689 specialized and academic libraries, 1,742 IT clubs, and more than 10,000 cybercafés. These venues are generally accessible to most citizens, although limited skills in using ICTs, socio-economic factors, and low educational levels limit access. The geographic distribution of venues, which clearly is biased towards the large urban centers, to the detriment of rural areas, also acts to limit accessibility to large segments of the population. Regardless of the value the venues may have as places where people can acquire information, the surveys, interviews, and related sources revealed that the general public still relies most heavily on word of mouth, mass media, and newspapers to meet their information needs. There is a general perception that libraries target young children and IT clubs target young adults, to the near exclusion of the general public. In addition, the communities commonly have a negative perception of cybercafés and believe they focus much too heavily on games and entertainment.

The average technological capacity of the individuals who use ICTs is slowly improving.

This improvement is due largely to the availability of various capacity building programs and the introduction of mandatory ICT training in education as a requirement for anyone seeking a civil service job. Nevertheless, that capacity level still remains limited to very basic skills. Also, most of the successful venues have remained focused on providing capacity-building programs, and this angle serves to distinguish them from cybercafés. This distinction applies directly to the IT-club program, which is the flagship program for Egypt's effort to improve public access to information through basic capacity-building initiatives. Unfortunately, individuals with special needs remain a marginalized group, despite a few activities that are emerging to support their needs.

Access, Capacity, Environment, and the Inequity Environment

The study conducted on public access venues in Egypt was based on the Real Access framework⁸ that falls into three principal categories: 1) access, 2) capacity, and (3) environment.

Access

Physical access to information venues can be described as reasonable despite the very wide range in the service quality. With most of the newly established venues that are open to public access, operating under a partnership model, the overall condition of any specific venue depends heavily on the hosting agency and the participating partners. The wide variations in the service quality and the physical condition of the facilities ranges from state-of-the-art sites, such as the Bibliotica Alexandrina, to small rooms in remote NGOs that have had little or no maintenance or upgrades for several years. These poorly maintained sites are commonly at the mercy of inadequate or sporadic support through programs funded and run by the government. Public libraries of the National Book Authority are an excellent example and

often lack appropriate funding for maintenance and operational issues. As a result, the facilities deteriorate rapidly. The location of many libraries also contributes to the quality of the services offered; venues in non-urban and underserved areas tend to be less well equipped and maintained.

While access to public venues in most cases is free, the cost of access is often a function of the level to which the services are utilized. The services are subsidized for the young people who use certain services, such as direct access to digital tools, but the cost of the services can become prohibitive when charged on an hourly basis. The effect on low and medium-income families is obvious. Conversely, libraries are affordable and accessible to most individuals. It is notable that while the cost of services in the different venues is affordable for most of the people in the middle and upper income levels, the priority those people place on access to information in public venues is questionable. In general, many Egyptians perceive information and access as an entertainment, rather than a valued tool. Consequently, most consider access to public venues to have a low priority, although such a broad generalization must be viewed with regard to the general socio-economic, educational, awareness, and time availability variables.

While the cost of using any given venue is usually affordable, the location of these venues and the corresponding cost of transportation to reach them has a significant impact on large numbers of potential users. This constraint applies to both urban and non-urban locations, particularly in the case of the larger more central venues, such as libraries. IT clubs, however, are usually focused on their respective communities, and the severity of the issues is mitigated.

The hours of operation for government administered venues follow the officially established business hours from 8:20 am until 2:30 pm, and are generally consistent with the majority of the educational and economic activities in Egypt. These rigorously maintained hours of operation,

in many cases, become a significant barrier to access for many people. Some venues, such as the Mubarak Public Library, have addressed this issue, and have extended the working hours and also are open during the weekends. Venues hosted in civil society organizations tend to be more flexible on this front, with more accommodating hours of operation.

Local cultures sometimes also affect the people's access to public venues. Gender is the most prominent among these issues, and some communities limit the access of women to various sites. Cybercafés, as an example, typically have only a limited number of female users, and the gender limitation is observed more commonly in rural areas. While this limitation is not as extreme in other venues, there is a constraint on the hours when females can access the venues.

Capacity

The technological skill and capacity of an individual is a key factor in accessing information, and this factor applies to users and operators alike. There have been significant program initiatives and promotional efforts to improve and support basic ICT skills among young graduates and among civil servants. The e-government programs have actually mandated the improvement of skills and understanding among civil servants. Correspondingly, the government views the improvement among the young people as a key element in the drive to support overall economic growth. Furthermore, improved skills and basic ICT knowledge are widely perceived as an asset to individuals and to capacity-building programs and have the full support of many IT clubs and libraries alike.

The capacity-building programs have been the singular focus of some IT clubs and the main source of revenue for most. Operators of IT clubs and digital ICT facilities in a significant number of venues are usually knowledgeable in ICTs, and, in some cases, act as trainers for the

capacity-building programs. In contrast, almost all librarians are graduates of library studies, with few having the requisite technological skills to provide any significant help.

The capacity to make the best use of the venues and the information they contain is most severely constrained by the educational level and awareness of the public. Huge numbers of the people in Egypt are illiterate, and estimates indicate they represent from 38% to 56% of the national population. The higher percentages most commonly apply to the rural areas, and immediately isolates a significant population from access to information. In acknowledging this issue, the government has introduced classes in basic ICT skills into the schools, but the effect on the practical application of the classes is limited by the lack of adequate equipment, especially in rural areas. The approach in those underserved regions is to focus more on a theoretical foundation.

Content remains a challenging issue, both in digital and printed form. Libraries that offer printed materials usually have limited budgets, and the selections offered are usually purchased from the local market and in limited quantities. This state of affairs is especially significant in academic libraries, where recent and up-to-date scholarly material is very costly to maintain at an acceptable rate, greatly limiting academic libraries from playing a much-needed role in scholarly research, especially in the sciences as they rapidly advance and evolve. The only exception to the lack of current materials that the researchers observed is the library of the American University in Cairo (AUC), which focuses mainly on the humanities. Some libraries, the Biblotica Alexandrina for example, focus on digital content and have depended on donations for their selection of materials. Some academic libraries have activities supported by the funds from groups that receive income from the production of natural resources, such as alumina, but these funding sources are very limited.

Digital content is limited, and the content online in Arabic is estimated to be no more than one half of

1%, with over half of the Arabic-speaking Internet users having a limited knowledge of English⁹ at best. Current news is becoming an increasingly larger portion of the online content. Several programs seek to increase the available content for public consumption, including the e-government portal and the community development portal, but they have not addressed the immediate needs of most communities, and have not been focused on the practical needs of those communities.

The available content and services are generally common across the different venues, with only limited localization within communities. Mechanisms to capture the information needs of communities do not exist, which means the content available is usually generic. The researchers noted that the majority of the increased Arabic content online has been attributed to user-generated content. While this content generation includes blogs and online forums, it seldom meets the relevant information needs of the communities.

The individuals who do access public venues represent only a small segment of the population, but they generally frequent the venues at a relatively regular rate. This scenario applies across all of the all venues studied. The presence of technology, in libraries for example, boosts the appeal of these venues to users. These regular venue users have integrated access into their regular routines, but the majority of the population is overburdened by other concerns that hinder their integration of venue use into their daily routines.

Most users of the Internet voice little concern about privacy and security issues, and only recently has there been much concern about cybercrime. Mrs. Mubarak has been the prominent spokesperson championing legislation to protect children from socially unacceptable online content, although the legislation has been slow to materialize.

Public opinion about the suitability of the available online content is sharply polarized, and most people either claim complete trust or total distrust in the information they find.

Environment

The overall environment in Egypt is advancing steadily and the change is driven largely by the government's efforts to improve public access to information. This effort gained significant headway when the MCIT was established in 1999 under the direction of H. E. Ahmed Nazif, who, became Prime Minister in 2004. He had long voiced his support of the telecommunication and information sectors. Correspondingly, Mrs. Mubarak added her support around improving the public library system and fostering access to information for younger children. Along with the advancements in the ICT infrastructure, the combined effect has resulted in the strong political support for access.

The telecommunication and ICT industries have made remarkable gains and created many new employment opportunities, although the results have not been felt to any great degree in the smaller communities and small businesses. Several programs have targeted small businesses and individuals to urge them to use ICTs, but the effort appears to have had only limited success.

One of the major challenges to the access to information is the widely disproportionate economic status throughout the population. Almost 20% of the population lives well below the poverty line, and a great many more people are challenged by the sharply rising cost of basic needs. Most citizens are unable place any real priority on acquiring even occasional access to the venues.

The government has established agencies to overlook telecommunication regulation, but the approach has focused mainly on bandwidth allocation for mobile providers and on the quality of ISP service. There are no regulations in place regarding access to information.

Information Needs of the Underserved Communities

Information sought through public venues has a strong correlation to the educational levels of the potential and actual users. There does not yet seem to be any emphasis placed on ways to extend the realm of that information, or to grow it into a broader sense that encompasses the needs of communities, especially the underserved communities. While most individuals continue to seek information first through word of mouth and the media, there have been modest attempts to provide content through other means. Again, the majority of the public has been slow to adopt these efforts. As an example of these minimally successful programs, one drive supported the creation of educational material relevant to Egypt's environment.

The Egyptian Education Initiative is currently the most active program that partners with several companies to generate educationally relevant content. Additionally, the e-government program is striving to place public information online, but this initiative has yet to become an established means of access to such information. Civil servants continue to possess information that would serve the public, which in turn adds to the perceived value of these public servants and the potential revenue generated. This imbalance is also magnified through the central nature of the government and the limitations imposed through any lack of legitimate access points for e-government service. Other forms of content are trickling down via numerous content programs led by the Ministry of Communications and Information Technology. A number of key programs have been launched, but none have effectively been able to tap into the exact needs of the communities they were intended to serve, especially among remote communities and rural areas.

In general, information that supports socio-economic activities is of great importance to underserved communities, including employment opportunities and information regarding small and

medium enterprise SME creation and marketing. There are several programs in place to support these activities, but the dissemination of this information to those who need it most has been quite limited. While the community development portal introduces some information regarding community-associated examples of SME activities, they are not supported by practical ways to initiate these activities to take advantage of funding and marketing opportunities.

Agriculture has been an overwhelmingly important socio-economic activity in Egypt for thousands of years and is no less so today; relevant information about agriculture is critical for its support. While the extension officer system for agricultural information in Egypt has been a long established method of disseminating information, it is not seen to address the overall needs of farmers. The United Nations Food and Agriculture Organization (FAO) has piloted several approaches to integrate ICT use into the extension officer program; however, it has received limited acceptance and use. The integration of agricultural information and marketing information, especially in newly reclaimed farming land, is urgently needed to help farmers become more productive and to increase their income.

Collaboration Practices Already Existing Across Venues and Future Opportunities

One of the very few common threads that link a variety of the venues is the ways in which public and academic libraries act as hosting organizations for some IT clubs. This situation should be construed as a collaboration among the different venues, which, if implemented, would add considerable value to all the participants. There are several levels of collaboration required to improve the services in the venues.

Most of the venues studied exist only as isolated samples of the models being proposed. The value gained by enhancing the collaboration among

these venues would serve a three-fold purpose. It would increase the volume of the knowledge base available to the users, facilitate greater knowledge sharing, and make better use of the limited funding by reducing duplicated expenditures. The overall effect would be to improve and add value to the services the venues could deliver.

A few activities have already begun to emerge to support the growth of these networks. The Mubarak Public Library (MPL) has become a central focus point for knowledge sharing among the new libraries established in Egypt. The growth of new libraries of the same nature in the different governorates have benefited from the integrated management techniques from the MPL. The Egyptian Universities Network acts as a central entity to lead the introduction of digital resources in Egyptian libraries. This approach still lacks the ability to cross-link these different libraries through a common index and interlibrary services. In June 2008, a program was launched to support networking and knowledge sharing among IT clubs. The intent was to increase networking and resource sharing among successful IT clubs to increase their impact on society.

The different venues remain as separate organizations, despite the presence of IT clubs in libraries. The interests of the people who use these venues are significantly different than the core audience in public libraries (most often children), while academic libraries focus mainly on researchers. Similarly, IT clubs focus mainly on young adults and recent graduates. While digital ICTs are the cornerstone in all these venues, the venues still need integration to help better understand the information being provided and to increase their credibility. Additionally, increasing the digital presence of libraries in Egypt would help increase the awareness of the libraries' role in society.

Buzz Factors

The Egyptian government has perceived ICT literacy as a gateway to transforming Egypt into an information-based society; this vision is reflected in the drive to introduce ICT awareness programs and to expand and improve digital content in general. In addition, this overall approach is viewed as a key element in light of the e-government programs that have had great success. The increased awareness of digital ICTs is widely perceived as a strong and valuable asset. However, the applications have remained limited to desktop applications and basic ICT skills. They have not yet been accepted and used widely enough in general terms to totally transform and apply them as a means to gain access to information. Clearly, however, this trend has not affected the perception of venues, such as IT clubs, as possessing great value.

Legitimate Use: Who Decides What Constitutes Legitimate Use of Information and Resources

Most venues in Egypt that are open to the public prohibit the use of video games. Additionally, chat is generally regarded as inappropriate, but it is difficult to limit access to such applications. There also is a commonly held perception that young people abuse these applications, although little is done to impede their use. Cybercafés largely depend on games and chat facilities to attract customers and generate revenue.

Blogs and social-networking tools have been met with great success, although their increasing use as outlets for political views have caused them to be subjected to some limitations by the government, though this restriction is not officially stated.

Many new information sources have not been able to draw upon open-source software. Established commercial proprietary systems, such as Microsoft technologies, have long dominated the

spectrum of public access. The general public envisions a strong correlation between ICTs and Microsoft technologies, while only a limited community, mostly computer-science specialists, adopting open-source software.

Shifting Media Landscape

Mobile phones have become a huge success in Egypt with estimates of more than 40 million users, with a user base unmatched by other ICT technologies. In addition to the communication needs that mobile phones address, many users have come to realize the socio-economic value mobile phones can add. Craftsmen, for example, use mobile phones as a way to gain access to customers. Additionally, SMSs in general, are far more successful among customers because of their competitive pricing and broadcast capabilities. Community journalism that relies on mobile phones to broadcast has increased, especially with the vast majority of phones having a multimedia capability.

Public phone shops are quite important in the way individuals communicate, although the increasing emergence of mobile phones is having a huge effect in the decreasing roles these shops play. Foreign investment in the telecommunications sector has increased, aiding the development of infrastructure and contributing to the growth of landline and mobile services, although penetration in many areas remains low.

Acceptance and use of GPRS and 3G technologies for mobile phones are on the rise, principally among individuals with greater awareness and higher social and income levels. Other forms of information access, such as GPS and community radio, have not experienced the same degree of success, and both remain tightly controlled by the government, to the extent of being prohibited in some cases. A limited number of private radio stations has emerged and has attained some success in competing with state-owned and controlled media.

Blogs and social networking have been tremendously successful in Egypt, with an ever-increasing number of users. While social interaction has been the most widely used means of communication, blogs are fast becoming tools of self-expression. However, blogs and social networking have drawn scrutiny for political reasons, and on several occasions, outlets, especially Facebook, have driven political involvement and have been the source of statements opposed by the government. Several bloggers and networking users have been prosecuted for their attempts to bring about change and for staging and supporting national protests. This situation drove the government to enforce user registration requirements in public access venues more rigorously as a way to identify individuals engaging in “questionable” activities. Wikis have experienced a very limited success through a limited number of enthusiasts who are increasing the wealth of Arabic content.

VENUE ASSESSMENT

Four key venues for public access to information were selected to be examined for this study: 1) public libraries, 2) academic libraries, 3) IT clubs, and 4) cybercafés. These four venues represent of the spectrum of public access venues in Egypt and are perceived to be major contributors to public access. Additionally, they have the potential to expand and more effectively meet the information needs of the public. The study focused directly on how these venues function, how they serve user needs, how they meet operational constraints, and how they realize successes.

Public Libraries

Among the general population seeking information, the single most frequently used venues are the public libraries, but the public library system has experienced an unfortunate and huge decline in the quality of the service they provide to the

users. Only recently has any significant effort been made to revitalize the libraries. Mrs. Suzanne Mubarak has been instrumental in leading this effort. The integration of other means, including ICT applications to improve the library system and to support shelved books, is reflected in the large influx of users who are returning to the public libraries nationwide. Other supporting programs, such as the “*عيمق للى قى ارق لى*” (reading for everyone), have also helped to return books to the hands of the people and have reshaped the use of books in society. All in all, public libraries remain a destination that most people perceive as a valuable public source of information. Among the more notable libraries are the 18 public libraries in the greater Cairo area administered by the National Library and Archives of Egypt. Although public libraries are generally accessible and affordable to all citizens, few of the libraries have accommodations to adequately serve individuals with special needs.

The public library system is administrated, for the most part, through the local government in each governorate, and the administrators commonly overlook the need for new and updated acquisitions. The lack of funding in most of these libraries has limited their use, their value, and the integration of new services, such as digital ICTs.

During the decade preceding this study, the public library system was improved to a significant degree by the efforts directed by Mrs. Mubarak. One of the most notable achievements was the development of the Heliopolis Services Development Society library and the 12 Integrated Care Society libraries. Both the Mubarak Public Library, established in 1997, and the Bibliotheca Alexandria were major expansions and additions to the library system. Overall, the public libraries in Egypt, with the exception of the national library and the Bibliotheca Alexandria, are generally perceived to focus on children.

The network of 1,127 libraries is distributed to serve most populated areas, although the quality of the services many of them offer is question-

able. The majority of libraries, and those that are better maintained and better equipped, are located in Cairo and Alexandria. While the services are affordable to almost all segments of society, socio-economic factors influence and support the perception of users regarding the importance of access to the libraries, and many people lack a clear understanding and awareness of the role of the libraries. This perception is reflected in the major skew of users based on their age group; most users are between the ages of 15 and 35. The addition and use of technological advances in library service have been slow to be adopted, both in management and public use.

The staff members, who are expected to focus on making information available to the users and their communities, are nearly all traditional government employees, with a limited knowledge of technology and a customer-service attitude widely criticized by users. The advent of public libraries managed by NGOs has improved this popular perception of the library employees to a modest degree. This improvement was extended significantly when the libraries also added a more colorful spectrum of activities that involved arts, theater, and digital ICTs. Still, the libraries generally remain focused on content provided through external entities in the form of books and digital content, and have not added much to the overall local knowledge base. This added content is mostly in Arabic, and does provide added relevance to local communities, but it focuses mostly on the arts and humanities. Several newly formed libraries have expanded their selections to include other languages and other forms of content, such as audio and visual material, in an effort to attract more users.

In general, libraries are not often regarded as a popular destination for people, although there are seasonal patterns in the number of users at any particular moment. Students and young people use public libraries as places to study and to conduct research during study periods and while preparing for examinations. In the summer, children and

students tend to use the libraries for general reading, as well as to participate in activities sponsored by the libraries. In some rural regions, public libraries are very seldom used because the people lack interest in the activities offered. Generally, newly established libraries are far more vibrant and relevant than the traditional older libraries.

Technology is a very recent and limited addition in the entire library network and exists only in a limited number of the libraries. The actual application and use of these technologies remains focused on capacity-building programs for children and young adults. These programs are yet to be implemented throughout the full range of the public system; however, where they have been implemented, they have become a huge attraction to many of the patrons.

In most of the public libraries, user fees are far from being sufficient to cover the operating costs of the facilities, and the libraries increasingly have to rely on support from the administering agencies, but that support has been in decline for a long time. The newer libraries established in partnership with NGOs have had a more reliable source of funds that come largely from donations, yet they still seldom meet the necessary levels the libraries actually need to maintain adequate service. Services other than access to the books in the stacks are typically available for fees based at a level to assure cost recovery. Insufficient funds, and the resulting lack of individual sustainability, sharply limit the ability of the libraries to maintain their existing services and resources. These constraints severely inhibit the ability of the libraries to sustain, improve, or expand the level and quality of the services they might offer.

Regardless of the value the libraries and related venues may have as places where people can acquire information, the surveys, interviews, and related sources revealed that the general public still relies most heavily on word of mouth, mass media, and other means to meet their information needs.

Specialized and Academic Libraries

Specialized and academic libraries differ from public libraries in that they each address a particular audience that has a narrow or specialized area of interest. The majority of the users are most often university students and researchers. The specialized and academic libraries also have integrated additional services and activities to improve their relevance to the limited communities they serve.

While academic libraries are accessible to some of the public, they are focused specifically on specialized areas of learning and research. These venues target students and researchers engaged in scholarly activities and this, in turn, bears directly on the content they house. This narrow focus also affects the affordability of access to the library in general. Limited funding and a lack of awareness regarding the service these libraries offer to research, have diminished the growth of academic libraries.

Academic libraries are organized in a network within each individual institution and are commonly divided between a central library and individual faculty and departmental libraries. While the central libraries typically focus more on arts and humanities, the individual faculty and departmental libraries host material relevant to narrow areas of specialization. For the most part, academic libraries provide access to selections of textbooks and research journals, but funding imposes limits on the quality of the selections. Several academic libraries have been able to attain donations to help update content, and the importance of that approach is increasing, but overall there is a general lack of funds available to support academic institutions and their libraries. Consequently, libraries continually search diligently for financial resources in an effort to become financially sustainable. There are very few indications that any of these efforts have had success.

The Egyptian Universities Network, in partnership with the Ministry of Communication and Information Technology, has intervened to provide access to online electronic scientific resources to state-owned academic institutions. This intervention is in addition to access to offline research databases that have been available in academic libraries for some years. Through a service unique to academic libraries, researchers can access the scholarly output produced within the hosting institutions, and this material has been the focus of a limited amount of digitizing activities in some libraries. Another intervention championed by MCIT is the introduction of IT clubs in libraries to provide users with general access to ICTs.

Academic libraries are maintained in educational institutions, and the vast majority of these facilities are in major urban areas. This concentration is most visible in the greater Cairo area, which hosts 32 of the total of 44 universities in Egypt. The most significant academic libraries are in Cairo University, Ain Shams University, and the AUC. In addition, Cairo is also home to the major research and specialized libraries, such as the National Research Center library and the National Library of Agriculture. Only a few universities exist beyond the metropolitan Cairo area, and those institutions, along with their accompanying libraries, are generally located in a few major cities in some of the governorates. This unbalanced distribution highlights the limited availability of specialized information among remote communities. In addition, the majority of these outlying libraries are housed in governmental facilities open to the public only during the official business hours that, in turn, further limit public access.

In most cases, the staff members in academic libraries are trained as librarians, and usually have only a very limited ability to provide the services that the users need. ICT capacity in some of the facilities has improved and is driven by the program to increase the technological capacity of

civil servants. Unfortunately, this capacity is not directed toward assisting users to find information online. Specialized libraries are often staffed by persons who are not even trained librarians.

IT Clubs

Information technology clubs are an important segment of the national initiative to transform Egypt into an information-based society. The IT clubs have the support of the Ministry of Communication and Information Technology, and are a telecenter model that provides citizens with access to digital ICTs, enabling them to use ICTs as a tool for development. The clubs are also designed to be a source of relevant e-government information and a means to drive socio-economic development using technology. A primary goal of the IT-club program is to facilitate the access of information to the general population, as well as to facilitate access to related features of the e-government programs.

More than 1,700 IT clubs were in existence in Egypt at the time of this study and were scattered throughout urban and non-urban regions in a pattern that closely follows the demographic distribution of the population. About 32% of the clubs are located in urban centers.

A typical club might have ten personal computers, a printer, and Internet access provided on loan for three years from the government program. A club is typically established in partnership with the program and a civil society organization that acts as a host. After the three-year period ends, successful clubs are granted the equipment.

Among the civil organizations that host IT clubs are youth centers, NGOs, schools, community centers, media centers, cultural palaces, libraries, local authority offices, and professional syndicates. For an organization to host a club, it must provide an appropriately furnished, dedicated space that is typically estimated to be worth US\$3,000 to US\$4,000. The responsible host organization pays the employment expenses

for the staff, as well as the operational expenses that range from US\$150 to US\$300 monthly. The organization is responsible for day-to-day management and supervision of the club, and for delivering appropriate reporting to MCIT. The moderate amount of money the hosting agency is required to commit limits the expansion of the program to more remote areas where NGOs and others have few resources to provide and/or maintain.

While IT clubs are generally accessible to all communities, the nature of the hosting agency has an impact on the general audience they serve. The only notable exceptions are individuals with special needs, who are served by only four IT clubs that exist through a partnership program between ICTDAR and Vodafone.

The IT-club program defines a business model that dictates the fees collected for various services. The fees are heavily subsidized, especially for students who receive a special discount of as much as 50%. The specific discount serves to both encourage young adults to become ICT literate and to support the broader scope of aiding Egypt's shift to a knowledge-based society.

Most IT clubs have focused, either out of demand or to achieve financial sustainability, on capacity-building programs, and only a few ever advance beyond that level to offer courses beyond basic ICT skills. A distant second-place purpose is to provide access to the general public. The club program has not automatically transformed club staff into knowledge intermediaries capable of directing users to useful information sources.

Several projects have targeted and encouraged communities to produce information that is specifically relevant to local needs, but the effort has been met with limited success. Other projects have focused on increasing the integration and networking of IT clubs to help create a better and stronger environment for IT clubs. While local capacity is present in most clubs, most clubs have struggled to find local relevance and to maintain a financially sustainable model. The results have usually significantly affected the quality of service

provided in those clubs, and most clubs have been steadily losing their user base and encountering damage to their reputations as affordable access points for the public.

While some content of national relevance does exist in Arabic, it is very limited and not well publicized. Locally relevant content is a nearly universal issue, and IT clubs and other related programs find it difficult to encourage people to create such content. The development of practical and relevant local content was a primary task each club was assigned when it sought to be established. The purpose was to focus the development of Arabic and other content related to the locally important daily socio-economic activities of the surrounding communities. Very few IT clubs generated even a modest amount of local content in response to the initial requirement. Some clubs that were supported by international organizations were encouraged to work with the United Nations Food and Agriculture Organization to become points of access to some online extension centers, which entailed exchanging information and generating local content and knowledge about agricultural subjects. However, the majority remained passive in this regard. Other initiatives to create content were established and some, such as the Community Development Portal, sought to develop content related to socio-economic development and SMEs.

People go to these venues primarily to access the Internet for personal uses, such as e-mail and general browsing. While some users regularly and routinely visit IT clubs, the cost of access and the lack of pertinent local information continue to be major factors that limit user access. Most of the users who frequent IT clubs are young adults with basic or more advanced ICT skills. While governmental and administrative agencies encourage and provide strong support for the IT club program, the local communities seldom exhibit a corresponding high level of enthusiasm. Economic priorities among both the hosting organizations and the users are a major reason for the lack of a strong presence of IT clubs in remote areas. Users

in small communities in remote and rural areas do not often consider the clubs to be relevant to their daily lives, despite all the public momentum to develop this program.

The IT-club program has been promoted as a public-private partnership, where civil society organizations host the clubs with the support of MCIT. While they have remained as isolated entities, there is currently more effort to encourage networking among IT-clubs to help them create a more supportive environment. This effort to encourage networking also ties into a broader regional networking plan for telecenters through the support of telecentre.org.

Cybercafés

Cybercafés in Egypt provide a community service by serving as venues that offer access to ICTs. These venues are commercially operated in the private sector for profit, in contrast to IT clubs, and operate within the constraints of market demand. There is no collective governing body for cybercafés. They have mushroomed in most communities and represent a venue for individuals seeking access to ICT technologies.

Cybercafés have undergone a variety of operational phases and developments in recent years as the topology of Internet access has shifted and evolved. The rapidly increasing ownership and use of personal computers, coupled with the decreasing costs of Internet access, have taken their toll on cybercafés. While cybercafés operate on revenue-generating business models, unlike IT clubs, they have been compelled to respond better to the users' needs. In turn, cybercafés are able to serve different users, at different times, in different locations, in contrast to IT clubs and other public venues that must adhere to regulatory constraints. Additionally, a change in the ICT spectrum drove a rapid shift in the primary services cybercafés provide – they now more commonly focus on entertainment through digital media and gaming.

The different phases cybercafés have had to face to maintain financial sustainability affected the role they play as public venues for information. In the last decade before this study began, and as the use of the Internet became more widespread, cybercafés were popular places to access the Internet, but that popularity began to gradually dwindle as Internet access became easier and less expensive. A significant number of the cybercafé owners and operators expressed a deep concern that cybercafés might soon become no longer as profitable as they had been at the outset. Some cybercafés continue to serve a narrowly defined user base, such as tourists, but these venues represent a very small percentage of the total number of operating sites.

Access to cybercafés is a function of the venue site location and the location of the surrounding community. As a small business, cybercafés invest in making their physical access as easy as possible by locating, to the best of their ability, in the most opportune neighborhoods and addresses. Like most other venues in Egypt, individuals with special needs are particularly underserved, and the special considerations and requirements they have or might need are rarely available. The technological setup in cybercafés is quite similar across Egypt, and any one site might typically contain anywhere from two to twenty personal computers, as well as a printer or two. The amount of funding available to the owner usually dictates the number and quality of the equipment.

Competition continues to control the price of using cybercafé services, and the prices have fallen dramatically in recent years. In addition, as various factors and initiatives increase the ability of individuals to access online services, the focus of many cybercafés has shifted – many have become entertainment and gaming outlets almost exclusively. Despite the fact that as a business cybercafés model their prices to suit the local communities, low-income households continue to be underserved and the more remote

and disadvantaged communities can rarely support the commercial cybercafés.

Cybercafés usually operate with a small staff expected to be resourceful regarding logistics and user assistance. Additionally, technology plays an important role in managing and monitoring the operations; the operators usually rely on some centrally managed software. Operational records became more important to the operators after the government tightened the regulations on cybercafés to more closely record the identities of the users and monitor them for security reasons.

Users are expected to have the skills needed to use the ICTs available at the cybercafés, especially since cybercafés do not conduct capacity-building programs and provide access only as a service.

Very little, if any, content is developed at cybercafés; they serve as outlets for existing online content. The extent to which the average user actually employs the available content is relatively low, and that low level is widely believed to be due to the very limited amount of content in Arabic. Many users also find that the existing content often lacks any practical, local relevance. Most users use personal e-mail and chat sites and browse through online news. Additionally, cybercafés are commonly perceived in a negative light because they offer readily available entertainment and gaming sites, and the facilities are often places where groups of young males congregate. Females, especially young females, rarely use cybercafés. In general, Internet access is becoming more widely used as the people become more aware of the way can technology can be used to access information and increase knowledge.

SUCCESS FACTORS AND RECOMMENDATIONS

The legal and regulatory environment surrounding public access to information venues in Egypt is favorable and benefits from the strong support of the government. Foreign investment in the telecommunications sector has increased, aiding

the development of infrastructure and contributing to the growth of landline and mobile services, although penetration remains relatively low. By increasing the public awareness of the role of ICTs in public access to information, and in using ICTs as a tool to access that information, several success factors and recommendations have emerged.

The support of prominent individuals, and the support of the Ministry of Communications and Information Technology for IT clubs and for public access in general, have resulted in the creation of a new wave of venues for the public. Programs to support Internet access, the increased availability of broadband technology, and the widespread ownership of personal computers have all vastly improved the public's capacity to access digital ICTs and the Internet. ICTs are widely believed to be an excellent tool to help Egypt transform into an information-based society. The government has been at the forefront of the drive to achieve a practical and useful form of e-government, and foster a variety of initiatives to support public access to information and ICTs. IT clubs are considered to be the keystone element in the drive to provide inexpensive and universally available public access to ICTs. In addition, ICTs serve to improve and increase the relevance of other public access venues, such as public libraries.

Despite this strong support from the government for public access to technology-based information and communication venues, people most commonly access information through mass media and by word of mouth. This point is particularly evident among lower-income and underserved people, rural people, and those in smaller communities far removed from urban centers.

Public phone shops are quite important in the way individuals communicate, although the increasing emergence of mobile phones is reducing the roles these shops play. In addition, the national economy has a major effect on the amount of investment placed in these programs, especially since they most often are based on partnerships with civil society organizations. The lack of integration of appropriate sustainability models

has also been reflected in the wide range in the quality of service among the different venues of the same type.

Capacity-building programs have been widely introduced in Egypt, and mainly target young adults and youth. While these programs overall have increased the general awareness of ICTs in various segments of the society, high illiteracy rates, and the limited awareness of the importance of digital ICTs, have contributed to the slow pace of technology penetration, especially in the low-income sector. Capacity-building programs have used IT clubs as a venue to provide training to individuals and communities at reduced prices. These programs are used to improve the knowledge of civil servants in basic ICTs and are also supported through the overall e-government programs. Collectively, these programs have increased the general awareness of ICTs in different segments of society, but especially among young adults. However, the high rates of illiteracy, and the limited awareness of the importance of digital ICTs, contribute to the slow pace of technology penetration, especially in underserved areas. Relevant content, and especially that which focuses on local needs, is limited, and also contributes further to the limited adoption of ICTs across all segments of society. The strong influence ICTs and libraries have on education has also driven venue operators to focus on those individuals still in school and on adapting capacity-building programs.

The hours of venue operation, the expense of transportation, and the cost of using the venue services all contribute to limiting access to the venues. While these limitations are seen to be changing in some urban locations (in part because of changes in the management of some public access venues), the changes have not appeared in underserved, low-income, and rural areas.

Gender remains an important factor in accessing information, with far more restrictions are placed on females than on males. Males have significantly greater access to alternative means of entertainment, especially to societal freedoms in

general. In addition, educational opportunities for females are much more restrictive than for males. This gender imbalance is hugely apparent among the people who frequent cybercafés, where male users far outnumber females.

Several of the public venues studied have increased in popularity, especially among younger people. Public libraries, in their new form, are gaining popularity among the users who frequent them. Academic libraries are sought by researchers who need to access scholarly material, although complete access to the materials in academic libraries remains quite limited. IT clubs are the most widely available public venues for accessing digital ICT, but the clubs tend to focus primarily on capacity-building programs. Cybercafés generally are perceived as convenient places to access computers and digital ICTs, although the sites are increasingly oriented toward gaming and entertainment, rather than providing general public access to information.

While there have been several efforts to increase the content accessible through the various venues, it has yet to achieve any significant success. IT clubs are intended as venues to consume and produce content, but the content production has yet to materialize. While user-generated content contributes the most to the increase of Arabic content online, it has focused mainly on news and personal sites, and has yet to be developed to support community needs and knowledge. Better networking among IT clubs to create relevant user-generated content is an opportunity that remains untapped.

Success Factors and Recommendations for Promoting Public Access to ICTs

In addition to the need to increase the general awareness of the role of ICTs in public access to information and the use of ICTs as a tool, several success factors and recommendations have emerged from this study.

- Assisting the creation of networks among public access venues can increase the ability of these venues to share knowledge. This is a particularly important step to better distribute and use resources, to create support networks and a broader set of content and services relevant to local communities, and to develop sustainability models. The deployment of effective sustainability models will greatly aid the IT clubs as they transform into training centers, and to solidify their role as venues for public access to information. Well-developed sustainability models will help towards increasing the number of accessible venues, especially in rural and underserved communities.
- Once established, the networks will further strengthen and increase the capacity of the operators and staff to work as information intermediaries. Only a very small segment of the Egyptian population has been trained to use ICTs. A practical program to train venue operators would help them to distribute relevant information to the public and help both the operators and the public to acquire and retain appropriate knowledge. The operators would be better positioned to drive relevant content creation.
- Develop practical methods to create appropriate content and then disseminate those methods so they can be applied to support further development of public access venues, such as governmental portals and digitization programs and through innovative means to seek and understand community-relevant knowledge. Allowing individuals to influence and direct the content being provided would help align the needs of communities with the goals of content providers, and could drive these programs to become an excellent source of information.
- Increase the amount of digital content present in libraries and online, and develop the

means to share and integrate basic library activities with new technologies at public access venues. The result would increase the relevance and accessibility of libraries, and would also minimize the amount of funds libraries would need to expend to purchase and own printed material.

CONCLUSION

For more than a decade before this study was conducted, the Egyptian government invested large amounts of funds in economic reform and deregulation of the national economy. While the government quotes statistics to support the appearance of an improved economy, the broader population in Egypt has not yet begun to realize that improvement. Furthermore, the government continues to provide a sizable subsidy for basic needs, which contributes significantly to the national budget deficit. Nonetheless, the government continues to invest heavily in creating physical infrastructure across Egypt – ICTs play a significant role. The government, through this investment in ICTs, aims to encourage foreign development investment and economic growth, while continuing to transform Egypt into an information-based society.

Through several programs championed by the Prime Minister, MCIT, and prominent individuals, there has been significant change in the models and methods by which information can be obtained. The cost to access information has been reduced enormously in recent years, and access venues have become hugely competitive, especially with the deregulation of many services available through ICTs.

The research team became aware of, and in many cases became involved in, activities related to IT clubs. However, information regarding other venues was sparse and, in many cases, absent, leaving access to unpublished material as achieved only through personal contacts. Cybercafés have been the most difficult venue to study because

there was no consistent organization structure to guide the team. Even the cybercafé licensing body changed while the study was being conducted. One of the biggest hindrances the team faced as they conducted their research was the time and the resources needed to select a statistically significant sample. In addition, it proved difficult to locate respondents who were willing to provide information for the detailed surveys. This difficulty was due in large part to the timing of the study, which overlapped with the end of year for most educational institutions, as well as the end of the academic year, which came at different points depending on the institution. The problem was compounded because many of the people who had valuable information needed for the study were not present for the survey. In addition, it would have been beneficial for the samples needed in the study to be spread across different times of the year because many of the venues targeted for review have individuals who use and access them during different seasons.

While the individual venues may have been organized and studied in different domains, the comparison of these venues was valuable and enlightening to the study. The role of ICTs as a point of attraction to other venues was apparent; its effect in driving users, especially young people, was noted. Leveraging this appeal of new technologies could help create a more vibrant society. The focus should be placed on growing this appeal beyond capacity building and more into information access.

The notable lack of collaboration among the number of venues and across venue types is apparent; a greater degree of collaboration would greatly benefit the venues. This collaboration is especially important because most venues complain about the lack of appropriate funding to perform their activities. Better integration among the venues would help create a more sustainable network of public access points. Moreover, there is a huge demand for more and better content.

Through the course of this study, similar patterns across different venues were noted and documented. It became clear to the research team that additional studies are needed to help focus greater attention on the findings and to grow the literature in this domain from case studies to a more precise methodology to assess experiences in other nations. These additional studies could highlight the impact of ICTs and public access on communities and socio-economic realities. They should develop a better understanding of the non-users who should be the target of the next wave of ICT programs that would benefit a greater number of people.

ENDNOTES

- ¹ In the context of this study, the major metropolitan areas in the greater Cairo area and Alexandria were considered urban, while all other locations were considered non-urban.
- ² Est. 2001 CIA World Fact Book <https://www.cia.gov/library/publications/the-world-factbook/geos/eg.html>
- ³ Egypt's 2005 Human Development Report
- ⁴ 2008 CIA World Fact book http://www.theodora.com/wfbcurrent/egypt/egypt_people.html
- ⁵ In the context of this study, the major metropolitan areas in the greater Cairo and Alexandria were considered urban, while all other locations were considered non-urban.
- ⁶ <http://www.idsc.gov.eg>
- ⁷ <http://www.sis.gov.eg>
- ⁸ http://www.bridges.org/Real_Access
- ⁹ The ICT e-volution <http://www.ameinfo.com/159937.html>

Chapter 35

Public Access ICT in Turkey

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EXECUTIVE SUMMARY

The Republic of Turkey is a modern, dynamic country in southwestern Asia with a broad-based, healthy economy that supports a population of just over 70 million. The country spans 780,500 sq km (slightly larger than Texas) and is bordered by Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Iran, Iraq, Syria, the Black Sea, the Aegean Sea, and the Mediterranean Sea. The land is mostly mountainous with a narrow coastal plain and a central high plateau. The climate is temperate and more than 53% of the land is said to be arable.

Turkey is governed as a parliamentary democracy with a strong tradition of secularism. The president is elected to a five-year term and is the head of state. A unicameral legislative body seats 550 representatives.

In 2007, the GDP exceeded US\$400 million, derived primarily from a robust international trade in agricultural products and mineral resources. While Turkey has some light industry and tourist income, most of its revenue stream is based on

oil and natural gas production, as well as gold, copper, coal, and numerous other minerals.

Turkey moved towards a market-based economy in the 1980s, but in the 1990s, the country experienced rapid growth and also faced financial crises and economic recessions. After 2001, the economy began to recover and employment increased. The Turkish economy now shows a strong and stable growth with notable foreign investments due to improvements in the banking, retail, and telecommunication sectors.

The interest in information and communication technologies (ICTs) in Turkey began in the early 1980s, but with the spread of the Internet, that interest accelerated in the business world, which led individuals to use computers in the cybercafés, as well as to own computers. The government has prioritized ICTs in education, in businesses, and the public sector, and encourages capacity building among the population. Although there are regional and socio-economic differences in adopting ICTs, the general trend seems to be positive and moving forward.

Turkey was selected to participate in this international study to assess the ability of the

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public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The researchers assessed how the venues function, how they serve user needs, how they meet operational constraints, how they realize successes, and how they meet the needs of underserved communities and groups.

The study was intended to investigate issues related to the Public Internet Access Centers (PIACs), which were created when the Turkish eTransformation action plan was launched a couple of years before this study was initiated. The plan called for opening 4,500 PIACS with each one having 20 computers, a projector, a laser printer, a multi-media library, and a trainer on staff. The purpose of the PIACs was to offer free access to public information and to train the public on basic computer, language, and vocational skills. Each center grants a certificate to those who successfully complete the courses. Just over half of the planned PIACs at these venues have been launched.

The objective of this present study was to examine the services, facilities, and technologies at these venues and to provide a context for their effectiveness, especially as they are able to meet the needs of the underserved communities and groups.

Methodology

This study began in 2008, and is part of a global effort to examine public access to information in 25 countries. In Turkey, the information was gathered through interviews with stakeholders, venue operators, and users, while drawing on the expertise of professionals involved in e-transformation, e-government, e-development, and digital-divide issues. These professionals came from academia, the prime minister's office, the Ministry of Education, public libraries, and international organizations interested in advanc-

ing ICT usage in Turkey. The interviews were conducted by email, Skype, and telephone, as well as in person.

The primary information sources include the senior public-sector professionals who are responsible for planning, implementing, and monitoring the PIACs. Most of the literature reviewed was based on reports from government agencies. However, the researchers reviewed published documents, online resources, and mainstream newspapers. Secondary data sources included the Internet, newspapers, reports, and published statistics.

The researchers selected libraries, municipalities, and public training centers as the three key venues for the study, but they had difficulty collecting valid data on ethnic origins, cast inequities, and health-related information. A questionnaire-based survey was conducted to obtain information regarding the venues, who the users were, and how the venues were used.

After the venues were selected, the researchers contacted twenty specific venues to conduct telephone interviews in eight different locations – four in urban areas and four in non-urban areas. In each location, each of the venue types was surveyed to collect data from the venue operator and forty venue users.

The researchers visited all eight locations; however, they were not able to complete a survey of each type of venue in each location because of time constraints, lack of a suitable number of venue users, and several other limitations. Nevertheless, the researchers were able to visit six urban venues and six non-urban venues across a reasonable distribution of each targeted type of venue. A separate questionnaire was used for surveying the operator or responsible person at each of the venues visited.

Findings

The following key points emerged from the study:

- There is strong political support to make ICTs available to citizens, businesses, and public-sector organizations.
- Although there were a number of public access information centers in the country and some libraries were offering ICT-based services, the e-Transformation efforts aim to expand the infrastructure to enable the public to access information via 4,500 new PIACs. However, there is no central authority responsible for opening and operating the venues, and the coordination efforts are slow and often ineffective.
- After venues are set, they become the responsibility of local organizations that often lack the skills, manpower, and funds to support and maintain them. Consequently, some venues remain closed, or their use is strictly limited, because of a concern that any breakdown or maintenance may be costly or may be impossible.
- Venues are often used only by students for homework and email. In some cases, chats and Skype are allowed, but the sites do not reach their full potential.
- Mobile telephone coverage is extensive; a large percentage of the population uses mobile devices.

Success Factors and Recommendations

The current PIACs constitute a great resource for the country to promote the use of ICTs across the public and commercial sectors. One recommended policy would be the creation of a central governmental authority responsible for ICT affairs, such as a Ministry of Information Technology and Communications. Lack of such authority may be an important reason for inefficient coordination

and long term planning. Although the current efforts to open additional PIACs are very useful, they may be seen as a quick fix without an appropriate long-term plan for capacity building and maintenance of the infrastructure, which could result in a loss of valuable resources.

The local organizations that are responsible for these venues must be enabled to operate the venues by ensuring they receive the proper resources and funds to maintain long-term sustainability.

Apart from students and the younger members of the population, the underserved communities, including adults and people less skilled in ICTs, must be encouraged to use the venues. Special resources must be reserved to offer incentives to these segments of the population.

Although the creation of these venues is part of the larger strategy to support the eTransformation initiative, it is equally important to guarantee that the content is developed without delay in order to attract the greatest possible number of users. This content-development piece will contribute to the value of the venues and ensure that the users will gain the maximum benefit from the venues. The venues should not become simply places for communication and student homework. The content must enable the public to access the widest possible range to subjects and information. For example, they should have ready access to locally relevant content, government web sites, and other useful information sources that can immediately improve the quality of their lives.

COUNTRY OVERVIEW

The Republic of Turkey is a modern dynamic country in southwestern Asia with a broad-based healthy economy that supports a population of just over 70 million. The country spans 780,500 sq km (slightly larger than Texas) and is bordered by Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Iran, Iraq, Syria, the Black Sea, the Aegean Sea, and the Mediterranean Sea. The land is mostly

mountainous with a narrow coastal plain and a central high plateau. The climate is temperate and more than 53% of the land is said to be arable.

The country has a strong tradition of secularism and is governed by a parliamentary democracy. Turkey has traditionally maintained strong relations with the European Union and the United States, and the relations with South Asian countries and Japan improved in the late 1980s. Turkey also developed strong ties with Central Asian countries after the collapse of the Soviet Union gave independence to Turkic states.

Turkey is divided into seven major regions with 81 districts and is governed as a parliamentary democracy with a strong tradition of secularism. The president is elected to a five-year term and is the head of state. A unicameral legislative body seats 550 representatives.

In 2007, the GDP exceeded US\$400 billion, derived primarily from a robust international trade in agricultural products and mineral resources. While Turkey has some light industry and tourist income, most of its revenue stream is based on oil and natural gas production, as well as gold, copper, coal, and numerous other minerals. Turkey moved towards a market-based economy in the 1980s. In the 1990s, the country experienced rapid growth but also faced financial crises and economic recessions.

The national economic model shifted from being state centric to a market-based model in the 1980s. After 2001, new reforms led to a controlled inflation, the economy began to recover, unemployment fell, and the confidence in investments improved. Under the influence of the European Union unification process, government regulatory control was reduced in many areas, including trade and investments. Many publicly owned industries were then, and still are, being privatized. The Turkish economy continues to demonstrate a strong and stable growth pattern with notable foreign investments that developed,

following significant structural changes in the banking, retail, and telecommunications sectors.

All these reforms create a slightly better environment for the underserved elements in the country, especially in the eastern regions. Turkey saw inflation decrease to a single-digit level in 2005, and the unemployment rate was reduced drastically to about 10%. However, the income distribution is still a problem, and the wealthiest 20% of the population has a disposable income of approximately 46%, but that number drops to only 6% for the poorest 20% of the population.

The population is approximately 80% Turkish and 20% Kurdish, and there are several small minority groups. Seventy percent of the population is concentrated in cities, with 20% of the entire population living in poverty. Much of the population is young, education is compulsory, and the literacy rate is about 87%. That rate is higher for men (95%) than for women (79%). There are distinct differences in the education, social, and economic status between the eastern and western parts of the country where the east and southeast are mostly rural.

The interest in information and communication technologies (ICTs) in Turkey began in the early 1980s, but with the spread of the Internet, that interest has accelerated in the business world, which led individuals to use computers in the cybercafés and to own computers. The government has prioritized ICTs in education, in businesses, and the public sector and encourages capacity building among the population. Although there are regional and socio-economic differences in adopting ICTs, the general trend seems to be positive and moving forward.

Turkey was selected to participate in this international study to assess the ability of the public to access information and communication venues, and also to review the role of ICTs across the overall economic, political, and regulatory framework. The researchers assessed how the venues function, how they serve user needs, how

they meet operational constraints, how they realize successes, and how they meet the needs of underserved communities and groups.

METHODOLOGY

This study is part of a global effort to examine public access to information and began in 2008. In Turkey, the information was gathered through interviews with stakeholders, venue operators, and users, while drawing on the expertise of professionals involved in e-transformation, e-government, e-development, and digital-divide issues. These professionals came from academia, the prime minister's office, the Ministry of Education, public libraries, and international organizations interested in advancing ICT usage in Turkey. The interviews were conducted by email, Skype, and telephone, as well as in person.

The primary information sources include the senior public-sector professionals who are responsible for planning, implementing, and monitoring the Public Internet Access Centers (PIACs). Most of the literature reviewed was based on reports from government agencies. However, the researchers reviewed published documents, online resources, and mainstream newspapers. Secondary data sources included the Internet, newspapers, reports, and published statistics.

The researchers selected libraries, municipalities, and public training centers as the three key venues for the study, but they had difficulty collecting valid data on ethnic origins, cast inequities, and health-related information.

Literature Review

Most of the literature reviewed was based on reports from the state-planning organization and the Ministry of Transportation. Those documents were supplemented with articles written by academics, online resources from the public organization websites, and articles from mainstream newspapers.

Venue Selection

Until very recently, Turkey did not have any public venues where the public could access information through ICTs freely. The major outlets were the cybercafés, schools and universities, commercial business offices, and households in which the residents could afford to own a personal computer. Libraries in a few of the district centers also had a small computer laboratory with Internet access. As a part of the recent eTransformation effort in Turkey, the government decided to open 4,500 new Public Internet Access Centers (PIACs). This study focuses on libraries and the new PIACs. The researchers selected public libraries (some of which, in the district centers, already had PIACs) and two, more recently, opened venue types – municipality PIACs and PIACs at the Public Training Centers (Halk Egitim ve Meslek Egitim Merkezleri). These venues are referred to as Library Internet Centers (LICs), Municipality Internet Centers (MICs), and Public Training Internet Centers (PTICs).

There are 268 LICs (186 are new and 82 existed), 850 new MICs, and 1,155 new PTICs. Traditionally, the only public access venues in Turkey were public libraries and the Internet cafés, which we excluded from this study. The other two venues selected emerged very recently as a result of the Turkish government's new effort to establish an eTransformation in Turkey.

The researchers selected the three venue types because they are widely available in all parts of the country and are designed to meet the information needs of the population. They are aimed especially at those people who cannot afford to own a computer, or who lack the technological skills to use ICTs. In this way, the three venue types are somewhat complementary in terms of the majority of the types of users they attract. Students most often use LICs, adults most often use PTICs, and MICs are open to all of the public, but are particularly effective in rural areas.

Table 1. Selected public venues in Turkey

	Public Libraries (LICs)	Public Training Centers (PTICs)	PIACs at Municipalities (MICs)
Total number in country (A+B)	1,161	1,343	3,225
Number offering ICTs in the country (a+b)	268	1,155	850
A. Total number in urban location	81	About 200	About 120
(a) Percent offering ICTs	81	About 200	About 120
Total number of people served (annual)	Unknown	Unknown	Unknown
B. Total number in non-urban location	1,080	About 1,143	About 3,105
(b) Percent offering ICTs	187	About 955	About 730
Total number of people served (annual)	Unknown	Unknown	Unknown

It is difficult to make a clear distinction between urban and non-urban areas in Turkey, but for this study, the 81 district centers were considered to be urban, and all of the rest of the areas were considered to be non-urban. Some urban areas have more than one PTIC and MIC. The government currently identifies 3,225 localities as municipalities, but with recently enacted new legislation, some smaller municipalities will be combined to reduce this number to about 2,100.

A significant number of venue types were excluded from the study. For example, the Internet cafés are a major and widely distributed public access venue in Turkey, but they are commercial businesses that charge user fees and do not meet the selection criteria for this study. For the most part, the Internet cafés cater to young males who use the venues almost exclusively for games, communicating, and chat services. This is especially true in the rural areas.

As part of the 2006 action plan on PIACs, the Ministry of Industry and Trade announced plans to open public access ICT venues at the Organized Industry Zones to encourage and support the development of industry and manufacturing. However, at the time this study was conducted, none of these PIACs had been opened. These

venues were also excluded from the study because they were aimed primarily at the people who were working in those industrial zones.

The Turkish military planned to open a number of PIACs in Turkey and, so far, 227 have been established, but are not yet fully operational. Two of the military venues are located in Cyprus. The military venues are not available to the public and were excluded from the study.

The eTransformation efforts also include plans to establish Internet information centers in 13 youth centers, 49 orphanages, 22 girls' development centers, and 17 elderly care centers. Because of their narrowly focused user base, these venues were also excluded from the study.

One of the more widely available communication services now available in Turkey is the subscription-based mobile service for news and other data. Depending on the type of device in use, maps and location-based information are available. These kinds of services are becoming much more convenient now that the mobile telephony coverage has so rapidly increased nationwide. The rapid pace of acceptance is limited to some degree by the cost of the subscription and the type of services that can be offered via these small devices and screens.

Inequity Variables

Many factors affect the access to public venues that offer ICTs. The specific venues selected for this study and the subsequent analyses of the interview and survey results were made while recognizing the importance of these factors. The most important of the inequities are socio-economic status, educational attainment, age, gender, and location.

Socio-Economic Status

Income is an obvious barrier to accessing public information in those venues that charge user fees. For this study, the public was loosely grouped among high, medium, and low-income levels. The cost of providing ICTs and the necessary connectivity is very high in Turkey when compared to many other countries. For example, the cost of broadband is equal to 5.4% of the per-capita income in Turkey, while the cost is only equal to 2%, on average, in the OECD countries (DPT1, 2006). The public access to ICTs is an urgent need for those people in the low-to-medium income levels. People in the higher income groups have far greater opportunities to access various ICT media and own personal computers and mobile devices and can more easily afford the Internet or mobile connections.

With a significant rate of unemployment in Turkey, the percentage of low-to-medium income is higher than the European Union average. Surprisingly, many of the unemployed seem to have moderately good access to the Internet, but they often access the Internet for a number of reasons other than conducting employment information. An important observation in Turkey is that because community ties are strong, very large numbers of people can gain easy access to computers through friends and relatives who have computers.

Educational Level

In general, the level of an individual's education may directly influence both the ability of that person to access information and to define how information can be applied. The higher the education level, the easier it may be for an individual to be able to understand and use technologies that are often required to retrieve information. It also is possible that many schools and educational institutions may have special ways to present ICT training. The innovative strategies for ICT training in educational institutions can create differences in the ability to access information between those who are more educated and can benefit from ICT education, and those who have a limited education.

For Turkey, the use of ICTs, and the inclusion of ICT training in schools, are relatively new. Therefore, fewer people can comprehend and use the technology to access information.

The level of education also may have a direct influence on the need for the information. A higher user rate can be expected among the younger people who more often have a better understanding of the value of the information available to them via the new technologies, and who can be expected to evolve into the individuals who best apply the information. In Turkey, when computer usage and Internet usage were surveyed according to occupational status, students were rated highest (approximately 64% for computer usage and 53% for Internet usage) among other groups, such as salaried, unemployed, business owners, retired, and house wives (DPT1, 2006).

Age

Age is an important factor when determining the access to information and ICTs in Turkey. With regards to age, two critically important observations were noted. Young people form a very large segment of the overall population, and life expectancy nationwide, are relatively low when compared to other European Union countries.

Table 2. Distribution of population by age groups (%)

Year	Total Population (In Thousands)	Age 0-14	Age 15-64	Age 65+
2004	71,152	28.8	65.4	5.7
2005	72,065	28.4	65.7	5.9
2006	72,974	28.1	66.0	6.0

Source: TURSTAT,SPO, selected years from <http://ekutup.dpt.gov.tr/ekonomi/gosterge/tr/esg.asp>

Historically, the younger population dominates the country's population. The figures corresponding to the population group with ages between 15 and 64 have increased from about 8% in 1950 to 66% in 2006. Those who are older than 65 years of age make up only six percent of the population, with a modest increase of 3% since 1950 (Elib1, 2008). These figures lead to the conclusion that a large proportion of the country's population (the younger segment) influences the greatest need, the requirements, and the access conditions associated with the information and ICTs.

Gender

Turkey's economic development position has improved in recent years, and has brought social changes as well. The long-standing gender inequities appear to have improved to some degree, but are still defined in traditional ways. Men have always had an overwhelmingly dominant role in business and in other social interactions, and women continue to struggle to find ways to increase their position in the workplace. Despite regional and urban area differences, the majority of Turkish women, especially in small cities and villages, remain tied to the traditional role in the home. Few women are involved with accessing information and using ICTs. For example, Internet cafés in many small cities are often filled with young men, and women are rarely seen in the venues. Similarly, and because of the employment constraints, those who access information in the workplace also are most often men. In one study, a group of people who ranged from 16 to 74 years

old was surveyed about their usage of computers and the Internet. Women who were not employed outside the home ranked lowest (with 2.5% for computers and 1.17% for Internet use) in the group that included students, retired persons, working people, and small business owners.

Location

Location is a significant factor in defining inequities to the public access to information and ICTs. Turkey is a large country with a wide variety of geographical features, ranging from long coastal plains to rugged, high mountains. The geography sharply influences the degree to which a region is developed, and what type of investment exists in that region. The heaviest investments might be aimed at natural resources, tourism, industry, or agriculture. The investments, in turn, can affect the region's level of income, education, and employment, which often directly influence public access to information and ICTs, especially among the underserved.

For example, a study has shown that there are significant differences in computer ownership among seven different regions in Turkey (Ozcivelek, 2000). The lowest level of computer ownership is observed in the southeast region where only 1.2% of the households in the area own a computer. The Marmara region was leading with 16.8% of the households owning a computer. Although the situation has improved slightly in recent years, the regional differences in Turkey remain an important factor in accessing information and ICTs.

Data Collection

The information and data for this study were gathered through a variety of methods and sources. Much of it came from subject matter experts and professionals who work with e-transformation, e-government, e-development, and digital-divide inclusion issues in Turkey. Some of these individuals are from academia, while others hold high-level positions in public organizations, such as the state planning center and e-government units at the Prime Minister's office, managerial levels at the Ministry of Education, public libraries and publication organizations, and international IT companies that are interested in the eTransformation initiative in Turkey.

Some of the people interviewed were contacted by email, Skype, or telephone, while others were interviewed in person. Several of the persons interviewed were prominent stakeholders in the PIAC projects. About a dozen others interviewed came from the private sector along with twenty venue operators and four persons who perform research. Most of the data related to general ICT use and general venue assessments were completed through interviews. Pilot interviews were conducted to gain a general understanding about ICT use and the venues, and were directed at researchers from academia, experts from telecommunication companies and the IT sector, and a few public-sector professionals.

The interview results were useful in determining a basis for studying the venues and the people who are responsible for them. After identifying the responsible organizations and the administrators and operators, they were contacted. The key people from the Ministry of Transport, Ministry of Culture and Tourism, Ministry of Education, and the state planning organization were extremely helpful in identifying the specific venues to be investigated.

No formal focus groups or group interviews were designed, but small group interviews with

users were informally performed in four different venues to help the researchers obtain the best possible answers to the survey questions and questions aimed at particular locations.

The researchers visited 18 sites, including 6 libraries, 6 public training centers, and 6 Internet venues in the municipalities. The venues visited were selected for having a nationwide distribution, and the visits were supported by telephone conversations with more than 50 additional venues to find out what services were available.

After the telephone interviews were completed, eight district locations were selected, all of which had at least one of each type of venue. The researchers found it was not possible to perform the surveys in all of the venues. In some, there were not enough users available to interview, others were unable to support the researchers, and, in a few rare cases, the study team was not welcomed. Nevertheless, the researchers surveyed a total of 12 venues in 8 locations (3 libraries, 4 public training centers, and 5 municipalities). The distribution of the locations was still a representative sample, covering the key regions across the country. The specific locations were Urfa (southeast region), Hatay – Kirikhan (southern region), Ankara – Mamak and Cubuk (central region), Usak – Esme (western region), Silivri (northwest region), and Artvin (northeast region).

The researchers surveyed 479 respondents, of which 247 were in the non-urban venues and 232 were in the urban venues. In addition, they interviewed 12 venue operators.

For this study, it was difficult to make a clear distinction between urban and non-urban areas, and, in this case, each of the 81 district centers was considered to be urban, while all of the other cities in a district were considered to be non-urban. For example, Artvin is a district center with a population of just over 20,000, and it was considered to be urban. For this survey, the researchers were more interested in the activities in the non-urban areas because they were believed to reveal more

Table 3. Venues surveyed in the field

	Public Libraries	Public Training Centers	Internet Venues in Municipalities
Number of urban venues surveyed	1	1	4
Number of non-urban venues surveyed	2	3	1
Number of respondents in urban venues	27	40	165
Number of respondents in non-urban venues	81	124	42

about the public access to information with regards to the underserved communities. This designed was deliberately built into the study at the outset, when selecting the locations.

OVERALL COUNTRY ASSESSMENT

Public Access Overview

In the past few years, libraries in the district centers and in some of the municipalities were major venues offering free access to information via ICTs. Cybercafés were opened across the nation to serve the public interest in casual uses and entertainment. And then in 2005 and 2006, the government began to invest in the eTransformation initiative, and as part of that significant strategy, began establishing a series of new PIACs. Some of these new PIACs were installed at the libraries, some were at the country's widely dispersed public training centers, and yet others are scheduled to open as the responsibility of municipalities.

There is a growing determination and support by the government to improve the IT skills and capacity levels of the public and to enable small businesses to use ICTs. The investment in opening 4,500 new PIACs is part of that same strategy. The overview from a national perspective seems to be positive. However, problems have developed at the implementation level, with less than half that number having opened by June of 2008, and many of them not fully operational. There also

are problems with establishing a sound model to operate and maintain the venues.

Access, Capacity, Environment, and Inequity Environment

When this study was initiated, the libraries in each district center in Turkey were already equipped with an ICT center. The new PIACs are also opened in each district and are uniformly distributed around the country. Depending on the size of the room available to the locally responsible organization, and the needs of the community, the venues are designed to have 10 to 20 computers linked through a network and connected to the Internet. Some venues also serve as a small library.

The services are offered, in principal, free and open to all people and include a free membership, but because of funding limitations, the operating hours tend to be somewhat short and the use of the printers is restricted. In a few rare instances, even entrance to the venues is restricted. The researchers offered the opinion that these difficulties were attributable to the fact that these venues are new and operational policies are not fully developed.

The hardware and software used in these venues represent the newest available technologies, and the organizations that plan and install the venues seem to be fully capable. The most important issue facing these organizations that still needs to be resolved is to find a good operational model to sustain the venues after they are in place.

At the venue level, there are often issues regarding the technological capacities of the personnel

who operate the venues. In some cases, the local organizations are able to hire people with IT skills, but in some other cases, a voluntary and rotating support is requested from local teachers. Still, most of the venues lack a properly trained and skilled operator.

There is strong political support in Turkey for improving the technological capacity of the venue users through training sessions or short courses in ICT skills at the venues. The existing capacities among the users seem to vary from one venue to another, according to the level of formal education and IT education of the users. Capacity levels also differ between urban and non-urban users. The general observation during the site visits indicated that the operating organizations are willing to provide the services, and users are very keen to use the services offered at the venues to improve their skills. There seems to be a strong belief that these venues can help them improve the quality of their lives in many ways, such as helping them to find employment, learn about health care, or just to assist them with their homework.

As a developing country, Turkey has faced difficult economic problems in the attempt to overcome the issues surrounding the unequal distribution of wealth in the society. With the new support that can come from the country's admission into the European Union, several socio-economic schemes are being adapted that are aimed at improving the economy and creating a social welfare state.

Environment

Turkey's efforts to implement the eTransformation initiative have received strong support from many of the government ministries. The positive economic indicators also are helping the strategy financially. This overall improvement is directly reflected in the continuing investments in these venues. However, these investments at the higher levels may not flow downward adequately to meet the requirements at the local levels. Depending on the region, local organizations may not have

sufficient funds to operate and sustain the venues in the long run.

The legal and regulatory environment favors the creation and the implementation of the ICT initiatives, although these are still in the process of development and are not yet fully implemented. The political will and support for eTransformation seems evident in the operations of many of the ministries involved, despite a number of practical, financial, and implementation challenges. The process of applying for admission into the European Union supports the initiatives from the financial, political, and regulatory viewpoints.

Inequity

The inequities that emerge from the regional differences have long been known. Since 1980s, large-scale investments have been introduced in the eastern and southeastern regions of Turkey as incentives for various development and business initiatives for these underserved regions. The government has also introduced obligatory service schemes for public servants, such as those in education, health, and law enforcement, requiring these public servants to work a number of years in the eastern areas before they can work in other areas of Turkey. These schemes are often supported with higher compensation packages for the public workers. In this way, it was hoped that the under-developed and underserved regions would offer more opportunities and basic services to the residents in those areas, but the efforts have been only partially successful. The need to overcome the regional differences still exists and is a priority for the government.

Education issues create prominent inequities in the society. Traditionally, university entrance exams have always been very competitive, and the universities are not able to accept all of the young high school graduates who apply for admission. A few new universities have opened recently, and there are plans to open more universities to cover all of the 81 districts.

The issues related to gender and age have been described before, but are ongoing concerns that must be treated differently given the nation's socio-economic changes and the exposure that came through the application to join European Union. The roles of women in the society are said to be very slowly moving away from the traditional roles, but the shadows of culture and tradition are very difficult to overcome. As for age inequities, Turkey is known to have a large young population and an average life expectancy much lower than in other European countries.

The two of the greatest challenges to public access to ICTs are affordability and the public's technological capacity to use the computers. There are vast numbers of the population who are not skilled enough, educated enough, or affluent enough to use the ICT services that exist all around them. The government has announced plans to reduce these inequities by opening additional free public access venues to serve the public need.

Information Needs of Underserved Communities

The information needs of the underserved population have been described as immense, complex, and difficult to resolve. The access to public information in Turkey has always been difficult, and the reasons for these access challenges are generally attributed to two conditions. In the first case, the public organizations traditionally do not compile, record, or process data, and, second, there is no culture of providing information to clients as part of an organization's services. Consequently, the public has enormous and important needs for information to improve the working conditions, for greater gains in wealth, and for upgrades in the general quality of life. There is an urgent need to improve the access to valid information, to provide better and more reliable dissemination, and to drive the sponsoring organizations to deliver better services.

In present-day Turkey, ICT services are not being used effectively. In a study conducted in 2004 (DPT1, 2006), only 8.2% of the users among the members of the households surveyed used the Internet for non-trivial purposes, and only 3.5% used the Internet to buy or sell something online. According to the same study, approximately 93% of the respondents used the Internet most commonly for communication, games, and chatting.

Turkey faces a growing need for technological capacity-building programs to train and educate the population to understand how they can access the information that can improve their lives and help them accumulate wealth.

Economic, Policy and Regulatory Environment

Since 2003, the current government has invested heavily in its eTransformation initiative, and a number of eGovernment-related activities have been grouped within the eTransformation concept. The overall project coordination is the responsibility of State Planning Organization (SPO) and other ministries, such as Education and Transportation. A number of other civil, private, and public-sector organizations support the initiative.

The government and the SPO seem to have realized the importance of the initiative and have taken ownership and offered their full support for the project. Despite many difficulties in coordination and assessment of responsibilities, the eTransformation action plan includes opening 4,500 public Internet access venues, and demonstrates how current national initiatives are supportive of information access via public ICT venues.

Local authorities regulate the Internet cafés in their respective jurisdictions. The Internet cafés often have a negative connotation in some parts of the country, and local authorities, therefore, are often more willing to support the creation of better places for the public to access ICTs and information. Such venues are most commonly called Public Internet Access Centers in Turkey, or

PIACs, and much of the responsibility for opening new public access ICT venues is deferred to local authorities. Because there is no clear description of where the funds to support new PIACs might come from, the local authorities seem to be one of the best options in the national government's eagerness to support new PIACs.

Collaborative Practices Among Existing Venues and Future Opportunities

When this study was conducted, libraries were the only effectively operating public access venue in Turkey, which makes collaborative practices among libraries and the other venues a new opportunity. PTICs provide IT training and could help to develop the capacities of the users and possibly help drive the other venue types to extend the practice.

The collaborative experiences among many upper-level public organizations have proved to be difficult, largely because ICT and eTransformation issues relate to so many public organizations, and there is no single authority with the responsibility to coordinate these activities. As a result, there has been a growing call for the creation of a governing national ministry exclusively for ICTs.

Buzz Factor

The Turkish government is strongly motivated to enable the country to become an information-based and technology-based society, introducing the new eTransformation strategy as the vehicle to reach that goal. The approach is to enable businesses to use ICTs, modernize the public sector, and to improve the ICT skills of the citizens. It is believed that the new PIACs will support the capacity-building effort and create skilled users and trained personnel to take advantage of the services. The government also expects that the long-term results will improve the country's competitive position

in the IT sector internationally. The government, in general, has three primary aims:

- Support those persons who cannot afford to purchase a computer.
- Educate adults, unemployed persons, women, and retired citizens in ICT usage.
- Establish an effective capacity for people of all ages so they can productively use the developing e-government, e-education, e-banking, and e-commerce systems that will be available.

Legitimate Use

Traditionally, libraries have offered ICT-based information access to students for research and homework, but have banned, or heavily restricted, entertainment-related applications, chat sites, and other communication tools.

For the new venues at the public training centers and in the municipalities, there are two opposing views. First, the operating organization would like to be as generous as possible in offering the services as a way to help the users to develop skills, protect the young users, avoid idle lounging, and prevent possible cyber-related crimes. The opposition believes that pressures created by the limited availability of operating funds and skilled personnel to sustain the venues causes the sponsoring organizations to be more careful, restricting users who want to do more than homework, or web searching. This restriction is somewhat justified because any breakdown of computers or services creates an extra drain on the available resources.

There have been instances when the networks, computers, or the venue have been damaged or partially destroyed, sometimes because the venues are totally new to the users and sometimes because the users lack technological skills. In a few cases, the damage was seen to be malicious and deliberate. These conditions have been cited as valid reasons to limit access and use, but the

result would further limit the ability of the venues to meet legitimate needs. The venues in public training centers where ICT training is also provided might be the exception.

Shifting Media Landscape

Although computers and Internet access are an essential way for the public to access information, the penetration of Internet enabled mobile telephones, and the corresponding development of content, applications, and services associated with mobile phones, constitute the next step in accessing the information through ICTs.

Internet use in Turkey was noted to have increased from 2% of the population to 27%, and ADSL (broadband Internet) subscriptions by households and businesses have reached 78%. According 2006 statistics, mobile penetration had reached about 72% of the population (TUIK, 2006). Although there are differences in the types of the devices used between urban and non-urban users, most of the mobile users tend to upgrade their services frequently. As the popularity of “smart phones” and 3G wireless band devices increases, more and more users will be active and regularly browse, receive, or subscribe to information via mobile devices.

Currently, some of the popular subscription services include current news, SMS-based communications with public-sector organizations, local government-led implementations, educational services, and business content interchange.

Web 2.0 tools are becoming increasingly popular in Turkey and help users to create blogs, build communities via websites, and link to popular social networking sites, such as Facebook. Some of the tools even have versions in the Turkish language. These are most often used by the computer owners at home, or by those who have access to a computer in the workplace.

The combination of different media can best be exemplified by the mobile versions of some information websites and e-government websites.

Perhaps the mobile version of printed media and subscription services are the best examples, but the popularity of such combined usage, especially in the non-urban areas, is not be expected to be high.

VENUE ASSESSMENT

PIACs in Public Libraries (LICs)

There are 1,161 public libraries in Turkey, and 81 of them are located in district centers, with the rest in cities. More than 2,900 library workers serve the estimated 21 million people who access the collections of books believed to number about 12,958,000. Most libraries also stock audio books. According to provincial statistics, the main purposes for which libraries are being used are research, schoolwork, and reading newspapers.

Public libraries are convenient venues for accessing ICT-based information services. Initially, 82 of the public libraries had Internet centers and each had been equipped with ten personal computers, a printer and a scanner, but 186 of the new PIACs have been equipped with Internet centers. Approximately 23% of the libraries (268 of the 1,161 total) now offer ICT services and Internet access centers. A new investment project in 2008, through the cooperation with the Ministry of Transportation and TürkTelekom Inc., planned for 310 additional libraries to be built and equipped with Internet access centers, but by June of 2008, only 186 libraries had been completed.

Libraries are open 8:30 am to 5:30 pm six days each week, and many people think this is a serious limitation. Most of the information access in libraries is limited to research and is designed to support students with their schoolwork. Because the libraries are well established, have their own funding scheme, and are widely distributed nationwide, they could play a significant role in meeting the needs of the underserved communities.

PIACs at Municipalities (MICs)

At the present, Turkey lists 3,225 municipalities, but that number might be reduced to about 2,100 depending on the outcome of proposed legislation that would combine some of the smaller municipalities. As one part of the eTransformation action plan, there is a project to install PIACs in certain municipalities. According to the project plan, municipalities having fewer than 5,000 habitants will receive a PIAC equipped with 5 computers, those with 5,000 to 10,000 habitants will receive a PIAC with 8 computers, and those having a population of more than 10,000 will receive a PIAC with 10 computers. The plan calls for the municipalities to install the new PIACs at 1,184 locations, and TURKETELEKOM is to install MICs at 850 locations.

Municipalities are widely distributed nationwide and part of their mandate is to regulate the commercial Internet cafés. Also, the municipalities welcome the idea of having their own PIACs. Many of the municipalities are finding that the administration of the commercial Internet cafés is becoming difficult, and the venues are claimed to foster unruly and improper behavior. It is claimed that the venues are becoming gathering places for disruptive young people.

The municipalities are often heavily influenced by national and local politics, and there are unsubstantiated claims that the venues are often made to comply with the political agendas of the municipalities. Although municipalities offer great potential for the centers, the political climate may have a direct influence on how these MICs will be used.

Because these MICs are new, little is known about their acceptance, uses, or their user bases. Prior to the installation of the MICs, a number of municipalities took initiatives to establish their own PIACs. As this study was conducted, some of these venues were reportedly quite successful, although there were very few of them.

PIACs at the Public Training Centers (PTICs)

There are 1,343 public adult education centers distributed across Turkey, and most have been operating for many years. Most of the education activities at these centers do not conform to the formal education framework. Nevertheless, they serve a valuable purpose for the public, regardless of educational level, age, gender, or socio-economic status, and offer classes in literacy improvement, vocational training, and socio-cultural courses and activities.

In addition, some of the public training centers already offer ICT classes and have been operating successfully. Incorporating PIACs into these venues should be a reasonable next step and should be a relatively easy task. Because the PIACs are supported by the Ministry of Education and by agencies of the European Union, attendees will receive a European Union vocational training certificate upon completing the courses.

Since the Turkish republic was founded in 1923, Public Training Centers (PTCs), in one form or another, have served adults by providing them with skills to improve the quality of their lives through helping to create new job opportunities and sponsoring social-development programs. The PTCs provide training on literacy, IT skills, technological developments, arts and crafts, and other subjects that help individuals improve their working lives and social condition, or assists them in finding productive employment. PTCs are organized as a directorate under the Ministry of Education.

New PIACs are being opened as part of an initiative to develop training and information access centers. The researchers concluded that the PTCs are best suited for PIACs because they directly target a core group of underserved people. They focus on helping people who have little or no education, those who want vocational training, the unemployed, senior and retired citizens,

those who need special education, and those who migrate from rural to urban areas.

There are 1,343 PTCs in the country, and they are widely distributed in every district, including small towns and villages in rural areas. With the new eTransformation strategy, and as part of the plan to open 4,500 new PIACs, PTCs are well represented in 1,155 venues, and were being equipped with computers and relevant hardware and software. The trainers are qualified teachers or professionals, and many were employed exclusively for the PTC, while others were teachers or qualified local personnel working part-time for the PTCs. In general, these venues are under-funded, and it may not always be possible for them to offer the best courses or hire skilled trainers.

Access, Capacity, and Environment

LICs

According to the library service policies, the published Equity of Service variables must be treated equally, and the services must be offered in a uniform manner. These policies means that there can be no distinctions made among the classes or groups of users who seek to use the venues, or in the services offered. The urban libraries may have far more users and larger operating budgets, and this is thought to be the reason why the first ICT centers were located in the district centers and in the smaller communities. The venues were uniformly distributed across all of the nation's 81 districts.

The earlier Internet centers in the libraries were opened with funds drawn from limited budgets, and, as a result, those early centers were smaller, had fewer computers, and the technology in some of them may well be obsolete by now. The 186 more recently installed centers are adequately equipped with new modern hardware and software. Each of the new venues was initially to have been equipped with twenty computers, but they may receive fewer if the available floor space is inadequate, or if the local library management

needs other resources. These venues were planned to be fully equal. In general, any person who needs assistance is to be supported by the library technician or other qualified staff member. The services offered in these venues are subscription based and free to all users.

MICs

Very little information was available about these venues, but it is thought that they have great potential to serve the public without regard to socio-economic, age, or educational distinctions. Although the researchers did not find any direct evidence, political motivation may create some implementation challenges or promote some degree of discrimination against users. It is equally likely that political motives can also lead local authorities to become more sensitive to the needs of the underserved.

The technology and services in these venues are standard technologies and quite similar to the features installed in the new PIACs. The services are open to all members of the public and are offered free of charge to all users. Sometimes the operators review who the individuals are who are using the center, and in some centers, the staff keeps a record of the families of the younger users.

PTICs

The PTIC centers are distributed across all 81 of the national districts. Since the centers were first opened in the 1920s, they have been designed to reach illiterate people and expanded gradually to become established in all areas of the country. They have long been operating in rural and remote regions, especially in small towns or villages where they can best meet the needs of the underserved.

The PIACs were established in all centers, except those that lacked adequate physical space, but locations that had at least 25-square-meter classrooms received the PIACs. The new PTICs equipped with ICTs comprise 86 percent of the

1,343 PTCs in the country. Because they are so widely distributed, they are easily accessible by those who are in the target group, mostly underserved groups and especially adults.

The venues offer a set of standard training courses that are determined to be of greatest need in the local community. In addition, the local community can request other courses if a minimum number of people register for a class. If the necessary trainers, classrooms, and finances can be provided, then the requested course is offered. Such requests are often the result of evaluations of what might best meet the needs of the underserved in the local area.

In general, the courses are free. In some cases, voluntary donations are requested, although the voluntary donations are not requested in underserved areas, or from poor members of the public. Such policies make the PTCs affordable venues.

For PTICs, the non-training services, in principle, are free. In some rare cases, due to funding problems, printing might be limited or available for a small fee.

The ICT programs are often in demand, and in most places, basic IT skill courses are offered. The new PTICs are equipped with new, top-quality computers, hardware, and software. The combination of the infrastructure, equipment, and trained and motivated staff members are largely the reason why so many of these venues have been successful.

Revenue Streams for Publicly Funded Venues

All publicly funded venues operate under the principle of free access to all users, and they are not expected to generate revenues to sustain the operations. The venues are supported by government allocations, and in some cases, are augmented by local donations. In certain rare cases, small subscription fees are required, and sometimes a fee is charged to pay for training in PTICs.

Case Example

Sanli Urfa is an urban city in rural surroundings in the southeastern part of the country. The Urfa district has a population of more than a million, and about half of those people live in the Urfa district center. The municipality very recently was given a new PIAC equipped with 20 computers and is located in the public library. The facility is spacious, comfortable, and open to all users, but in reality only students are admitted, and the restriction was imposed under the guise of protecting the venue from “over-use.” The students range in ages from primary to high school levels, and a few are university students.

The students can use the computers and printers, conduct research, and study. Interestingly, the students are asked to supply their own printer paper to decrease printing costs.

The venue is staffed with two operators, and both of them have little or no knowledge of the ICTs or software being used and are not able to assist the students.

Comparative View of Venues

The research for this study indicates that the eTransformation strategy and the installation of the new PIACs have been applied in a standard and uniform approach without any organized and well-developed consideration of what is actually most needed by the users in the different venues. This approach seems to be the reason most of venues are occupied by users with very similar characteristics—students, young men, and in some cases, young women and a number of curious users. A few programs are in place for people who have special needs, but these programs are very limited and are the result of efforts by a few individuals or a very few venues. Clearly, they are not part of any broad planning processes.

There is a need to direct the services in the venues towards those people who lack formal education or IT training, are unemployed, and who

have special needs. One of the most significant successes across all of the venues is reflected in the free services. As a result, there is at least one effective set of services for people with low income. However, those people at the very low-end are not yet being served because they face other barriers, such as a lack of understanding of the venues, a lack of education, and, perhaps, age and gender differences.

The needs of these groups are often quite different from even the ordinary users of the venues. Those needs should be assessed, and the people should be empowered to be able to use the venues. They need to be shown that they can gain much that is immediately beneficial for them by using the venues, and this aid requires proper training and appropriately relevant content geared toward those who are really in need. One very important concern is the information needed by the elderly, the unemployed, women, and those who have special needs. The researchers concluded that the public training centers are the best venues to resolve this concern.

Access, capacity, and the environment are probably the most important factors having an impact on the way the venues are performing and will continue to perform. With regards to access, all three of the venue types seem to be positioned well in terms of their outreach. However, each one has a slightly different type of clientele. LICs seem to be aimed more towards students, MICs seem to be aimed more towards ordinary young citizens, and the PTICs seem to be aimed more towards the underserved who are able to attend the courses and use the facilities.

All of the venues offer free access, or in a few cases, charge very affordable fees. Given the funding requirements and the lack of sustainable financing plans, the free-access policy might change in the future. A few scattered cases have been observed in which some venues have started charging for printing paper or limiting the time each user can remain in a venue, although at the

time this study was conducted, the effects were minimal.

Perhaps the most important factors that influence access are the capacity of the operators in supporting the users and the capacity of users in being able to effectively use the services. The venues are not yet being used to their full potential to attract a wider user base, and the lack of operator technological capacity seems to be a significant cause. Improved capacity will enable the participants to make better use of the venues, and the venues will be better able to support and improve the users. In this respect, the PTICs seem to be in the best position because they can also provide ICT training.

SUCCESS FACTORS AND RECOMMENDATIONS

A document describing the strategy of introducing an information-based society into Turkey was prepared by Pepper & Rogers Consulting Inc., and was a three-year effort. The document includes a comprehensive work spanning all European Union countries, and describes the lessons learned. Despite the recommendations presented in the document, the implementation in Turkey is not going as well as planned and the expected e-government transformation has shown mixed results. Overall, most of the government institutions have made some evolutionary progress in their services to citizens, and all of the efforts collectively constitute a fundamentally new approach for new ICT projects and collaborations.

Many public libraries in Turkey already provide PIAC services and have experienced success, are expected to be frequently used, and are familiar venues. The public libraries, however, lack adequate promotion, the quality and quantity of personnel must be improved, and the hours of operation must be increased. Of particular importance, the technological skills of the operators and staff must be improved significantly.

Some municipalities, in Istanbul and Ankara, for example, have better budgets and offer good Internet café service without charge. They support a campaign called “Clean Internet Café” that has been implemented to overcome some negative aspects of private Internet cafés. The risks and problems associated with the venues at municipalities include, to some degree, regional inequalities and sustainability. The local municipality election in March 2009 in Turkey was expected to motivate some populist policies, such as the increase in the PIACs.

The current government ownership and the push to install new PIACs are generally welcomed in Turkey, and the plan to establish them seems to be feasible and working. However, the sustainability and maintenance of the PIACs for longer periods of time seem to be problematic because the cost and long-term responsibilities are not clear.

All of the venue types are free, in principal. This no-cost access is an essential strength for the venues and it should be maintained into the future.

The PTICs seem to be most appropriate among the three venues, and seem to be the best suited to aid the underserved in terms of accessibility. They also have the capability to train the operators and the users, and especially the underserved.

Current political will and support must be sustained and should not be subjected to changes in the political direction of the government.

Major recommendations regarding the operations and services of these venues include:

- Turkey needs a ministry of IT or ICT in order to keep efforts related to eTransformation, the modernization of public and private sector, and the services to citizens well coordinated. There is a need to move from implementations involving several organizations where there are no clear indications of who is actually in charge and responsible.
- PTICs need more investments because these are the right venues for public access to information, both in terms of their close-

ness to the users and in their ability to build capacity.

- The current efforts to open new PIACs all over the country should be supported by supplying qualified operators to the venues.
- One of the more significant points found during this study is that it is important to keep track of activities in the venues and their relationship to the equity variables. The venue-owning organizations often do not have any data on the underserved and their needs. This dearth of data makes it even more important to gather such information.
- Policy makers and the higher-level public organizations that are sponsoring the activities need to know more about what is actually happening at the grassroots level in these venues. This knowledge can provide effective feedback for better and long-term planning and for organizing responsibilities, costs, and sustainability.

CONCLUSION

Turkey faces significant problems as a developing country in building the infrastructure that can help it develop in a significant manner. This study examined a number of PIACs that are being launched in Turkey under a major eTransformation strategy. Specifically, the study focused on PIACs at the libraries, municipalities, and public training centers. At these venues, a number of issues were closely examined, including access, capacity, environment, and sustainability models. These issues were studied from the point of view of providing services to the underserved communities. It is observed that there is a significant support and political will in establishing a number of PIACs nationwide, but there is a lack proper planning for the sustainability and effective service provisions.

While conducting the research, much of the needed information was not readily available, presenting a major challenge. However, the

public-sector professionals and venue operators were helpful in sharing their experiences.

There are several issues that should be further examined. The actual user profiles and the actual services used should be studied and subjected to an impact analysis.

The following specific conclusions emerged from this investigation:

- Most individuals in the country have access to the Internet through personal computers or computers that belong to others. Gender discrimination affects the ability of women to access ICTs, and cultural inequities prevent most women and young girls from access to computers.
- Public access to ICTs exists mostly through the private use of computers or through cybercafés. While there are not enough data to provide a complete picture of public use of ICTs at cybercafés, the perception is that cybercafés provide ICTs for “trivial” use and are places where unemployed people loiter.
- The information needs of traditionally underserved people, especially minorities, are not met, and there are no initiatives to meet these particular needs.
- A central authority responsible for ICT issues is highly recommended, and the absence of such an authority may be an important reason for the lack of efficient coordination and long-term planning.
- The current PIACs constitute a great resource for the country to increase ICT use. Although deemed useful, the effort to open new PIACs may be seen as a quick fix without a proper long-term plan for capacity building and venue maintenance, which may result in a waste of significant resources.
- Apart from students and young persons, the underserved communities, including older people and persons without ICT skills, must be encouraged to use the ven-

ues. Special resources must be reserved to offer incentives to these groups to use the venues.

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* * *

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Ideacorp (www.ideacorpphil.org) is an independent, non-profit organization in the Philippines that is devoted to research, training and advocacy on development issues, particularly on the use of ICT for development (ICT4D). It is currently focused on three practice areas: *Access*; *Governance*; and *Education*.

Institute for Polling and Marketing is a group of companies IPM was established in 1995. Initially, several individuals worked in the company and they were focused on field activities. Nowadays the group of IPM organizations owns not only the full service research company, but it develops marketing and communication strategies, successfully implements PR projects, conducts business trainings, carries out full range of media research, monitors out-door advertising, TV broadcasting and printed media. IPM applies research technologies of international research institutions in the spheres of media, consumer, trade outlet studies and consultations. IPM activities are focused on marketing and social studies. In 1998 the organization began to utilize research technique of international standards and in this regard it launched its first standardized product- panel research of TV and radio audience. This product was followed by media monitoring, trade outlet research, out-door advertising monitoring and study, printed media research, Media Marketing Index (MMI), price research and other standardized products. Nowadays IPM applies standards of international research industry that may be proved by research audit conclusions. In 2005 IPM established ISO 9001 quality management standard.

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The Independent Sociological and Information Service "OPINIA" (ISIS "OPINIA") was established in 1992 on the basis of the former Moldavian Division (branch) of the Unions Center for Studying of the Public Opinion (WCIOM). "OPINIA" has expertise in the use of qualitative and quantitative methods of research, conducting representative surveys of the population and target groups in Moldova, experts' surveys, in-depth interviewing, focus group discussions, statistical and sociological analysis. OPINIA has substantial expertise compiling demographic, social and economic profiles of different segments of the population in Moldova using existent data sources and has compiled a rich database of social indicators, in Republic of Moldova since its independence, which is permanently up-dated with new information.

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