



Measuring Global Public Access to ICT:

Landscape Study Summary Reports from 25 Countries Around the World

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The University of Washington's Center for Information & Society (CIS) studies the design, use and impact of information and communication technologies (ICTs) on individuals and communities around the world, particularly on disadvantaged and underrepresented populations. CIS is a leader in the global network of ICT researchers, drawing on contributions from a wide variety of disciplines. Our goal is to produce work that empowers decisionmakers at all levels to improve lives by developing and deploying more effective, sustainable, and accessible ICT products, programs and services. For more information, please visit our website at www.cis.washington.edu.

Measuring Global Public Access to ICT:

Landscape Study Summary Reports from 25 Countries Around the World

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May 2009
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UNIVERSITY *of* WASHINGTON
The Information School

Seattle, Washington USA

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This report mentions a number of governments, government initiatives, companies, and products and services by name. This mention does not constitute an endorsement, nor does the lack of mention constitute a lack of endorsement.

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Summary

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY

Introduction

This document contains a collection of short summary reports for each of the 25 countries included in the Public Access Landscape Study conducted by CIS.

The Landscape Study examines how people around the world access and use information and computers in public settings such as public libraries, telecentres and cybercafés. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICT).

This study covers a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS is collecting, interpreting and analyzing these detailed country-level results, and is also conducting cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world. For more details about research design, and to find full country reports in this study visit www.cis.washington.edu/landscape or contact lead researcher Ricardo Gomez at rgomez@u.washington.edu.

Methodology

The study was conducted by local researchers in each country, coordinated by a team of researchers at CIS led by Dr Ricardo Gomez at the University of Washington. Using a common research design and methodological approach, researchers did independent fieldwork in each country and submitted reports to the UW team. In each country the research teams did the following:

- Document review – identify and review salient literature (published or unpublished) in each country in relation to the project’s area of focus. Total documents reviewed: 30-50 per country.
- Expert Interviews – identify at least ten specialists in the areas of interest of the project and hold in-depth interviews with them. Total expert interviews: 10-15 per country.
- Site visits – identify, visit and observe six or more venues of each type of venue studied (library, telecentre, cybercafé, other) for a half day, with special attention to include both urban and non-urban sites (ideally three of each). Sampling rationale: seek typical case samples of each type of venue, including both urban and non-urban sites. Total site visits: 18-22 per country.
- User Surveys – collect user information from sites visited using a survey instrument template (some set questions provided, with opportunity to add other questions in each country). Sample rationale: based on same sample of sites visited, survey every second or third user exiting the venue, target 40-50 users in each venue. Total users surveyed: 720-1100 per country. Note that the user surveys are not intended to provide statistically significant sample of the population or of the venues studied.
- Operator Interviews: identify at least one operator in each site visited and hold a structured interview for more in-depth understanding of the venue, users and environment. Total operators interviewed: 18-22 per country.
- Additional optional data gathering: focus groups with users, operators or experts; additional visits and interviews; peer consultation and review.

Based on these multiple methods of data collection, each local team prepared an interim report (for Phase 1) and a final, detailed country report (after Phase 2) with all the key findings and interpretation 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. All these documents are publicly available for consultation and reference on the project web site. This document is only a snapshot summary of all findings in an easy to read format. For more detailed analysis of each country, please refer to the full country reports prepared by each local team.

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, they constitute the primary source for information about users in the different types of venues, including gender, age, education and income variables. 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.

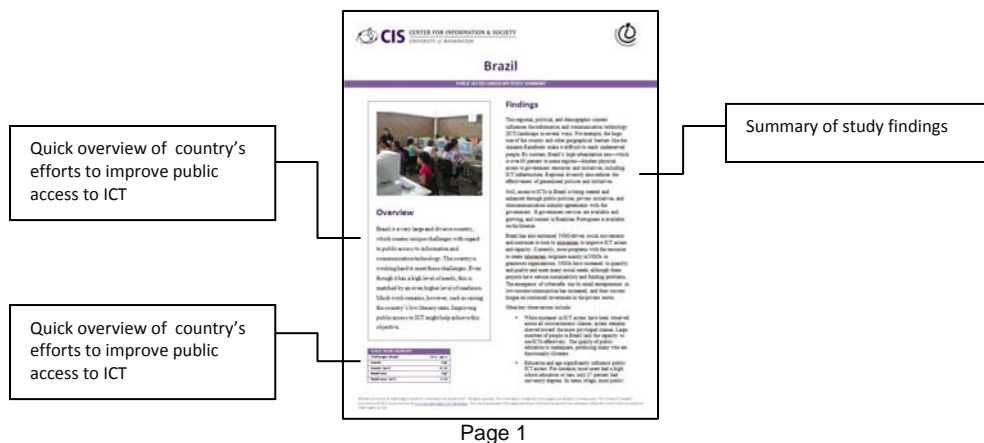
The data about public libraries is generally more reliable, as there are public records in most countries and international bodies that work with libraries (i.e., IFLA, UNESCO). Nonetheless, information about telecentres and, especially, information about cybercafés, tends to be sketchier. Information such as estimated number, characteristics and locations of cybercafés, and to a lesser degree, telecentres, tends to be an informed estimate, sometimes the result of “educated guesses” on the part of the 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.

For the purposes of this study, we use the country reports prepared by the local researchers as the primary source of data for our analysis.

Summary Report Detail

Following a common research design led by CIS, each country conducted local fieldwork and analysis to produce a detailed report that is approximately 150 pages long, describing the methodology, country findings, and assessment of public access venues: public libraries, telecentres, cybercafés and other. Finally, each country report includes a set of success factors and recommendations that distill the lessons and insights gained from this research to strengthen public access to ICT in each country.

Each report is summarized to capture key elements of the research findings and recommendations, as well as a quick overview of the country context in relation to public access to ICT. These short summaries are not comprehensive, but help give a general picture of the public access landscape in each country. Each country summary includes the following (see the glossary at the end of this paper for definitions of some of the terms used below such as needs, readiness, ACE, and so on):



Charts showing access, capacity, and environment (ACE) rankings of libraries, telecenters and cybercafés in country relative to 25-country averages

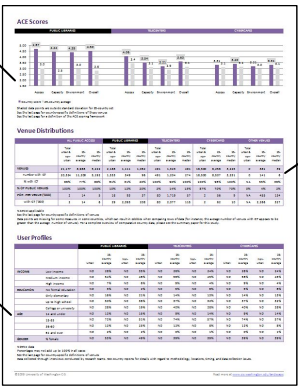


Table showing public access ICT venue counts and distributions in country and relative to 25-country averages and medians

Table showing user profiles in country's public access ICT venues (income, education, age, gender)

Summary of study recommendations

This study identified several factors that limit public access to ICTs. Significant recommendations include:

- Develop and implement a national strategy for public library services.
- Establish a national library network to ensure access to ICT services.
- Provide training and capacity building for library staff.
- Ensure that ICT services are accessible to all segments of the population.
- Strengthen the regulatory framework for ICT services.

Summary of country's geography and economy

Geography & Economy
 The study area is located in the northern part of the country, characterized by a semi-arid climate and a population of approximately 1.5 million. The economy is primarily based on agriculture and services.

About this study
 This study was conducted to assess the current state of ICT services and identify key challenges. The research was carried out through a series of interviews and focus group discussions.

Definitions
 For the purpose of this study, the following definitions were used:

- Public Access:** Availability of ICT services to all citizens.
- Capacity:** The ability of a venue to handle a large number of users.
- Environment:** The physical and social conditions that affect ICT use.

Description of study

Table showing country's population, literacy, e-readiness, and gini coefficient

Research team and CIS contact information

Definitions

Summary Reports Included

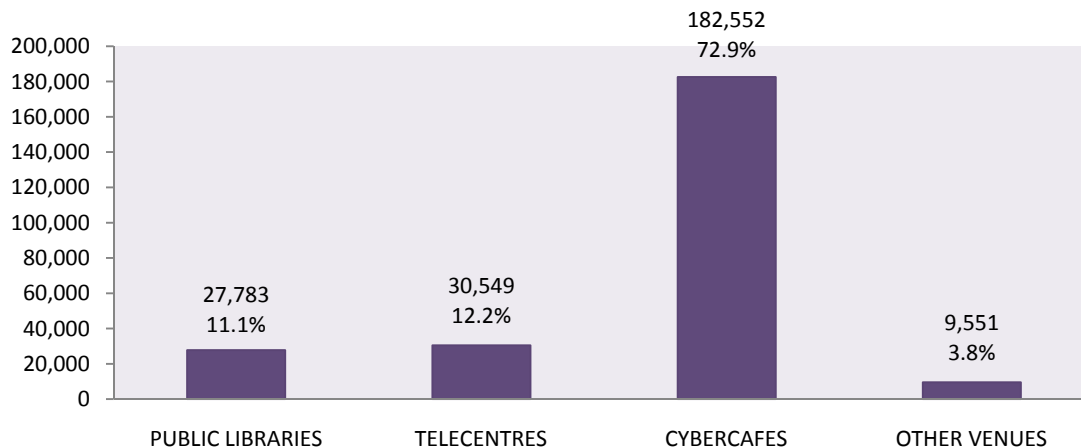
The 25 countries included in the Landscape Study and for which summary reports have been prepared are as follows:

- Algeria
- Argentina
- Bangladesh
- Brazil
- Colombia
- Costa Rica
- Dominican Republic
- Ecuador
- Egypt
- Georgia
- Honduras
- Indonesia
- Kazakhstan
- Kyrgyzstan
- Malaysia
- Moldova
- Mongolia
- Namibia
- Nepal
- Peru
- Philippines
- South Africa
- Sri Lanka
- Turkey
- Uganda

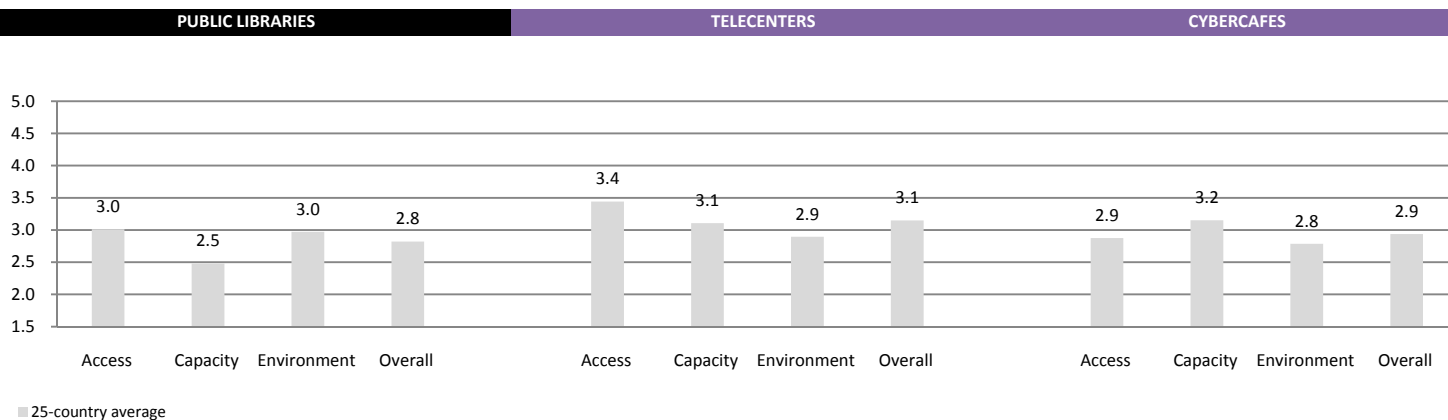


Comparison Charts and Tables

Overall proportion of public access ICT venues (250,435 total)



ACE Scores



See the last page for country-specific definitions of these venues
See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	250,435	10,017	5,489	27,783	1,111	1,062	30,549	1,273	366	182,552	8,693	3,225	9,551	398	46
number with ICT	186,229	9,802	5,122	7,689	349	96	22,987	1,149	257	153,118	8,507	3,251	3,355	146	13
% with ICT	74%	98%	87%	28%	31%	20%	75%	90%	100%	84%	98%	100%	35%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	-	11%	20%	-	12%	11%	-	73%	67%	-	4%	1%
POP. PER VENUE ('000)	-	8	5	-	93	37	-	205	68	-	52	9	-	419	103
with ICT ('000)	-	15	6	-	2,093	208	-	242	119	-	62	10	-	1,354	198

See the last page for country-specific definitions of these venues
Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES		TELECENTERS		CYBERCAFES	
		Urban 25-country average	Non-urban 25-country average	Urban 25-country average	Non-urban 25-country average	Urban 25-country average	Non-urban 25-country average
INCOME	Low income	28%	35%	26%	24%	26%	24%
	Medium income	54%	46%	56%	45%	56%	45%
	High income	7%	6%	9%	4%	9%	4%
EDUCATION	No formal education	3%	2%	5%	6%	5%	6%
	Only elementary	16%	21%	14%	13%	14%	13%
	Up to high school	50%	36%	37%	32%	37%	32%
	College or university	28%	19%	40%	28%	40%	28%
AGE	14 and under	12%	15%	9%	14%	9%	14%
	15-35	72%	51%	74%	57%	74%	57%
	36-60	12%	23%	12%	8%	12%	8%
	61 and over	2%	2%	0%	1%	0%	1%
GENDER	% female	53%	49%	39%	39%	39%	39%

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

Common Definitions

The following definitions are common across all 25 reports. With regard to the common definitions for libraries, cybercafés and telecenters, the exact nature of these venues varies by country and these variations are noted in each country report. In addition, many countries have other types of public access ICT venues, and these are also noted in the definitions sections of each country report.

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. “Access” includes variables such as accessibility, suitability, affordability, and the availability of technology; “capacity” includes training, relevant content and services, social appropriation, and collaboration capacity; and “environment” includes socio-cultural factors, popular support, political will, and a country’s legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country’s public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafé: An **internet café** or **cybercafé** is a place where one can use a computer with [Internet](#) access, most for a fee, usually per hour or minute; sometimes one can have unmetered access with a pass for a day or month, etc. It may serve as a regular [café](#) as well, with food and drinks being served. Internet cafés are located world-wide, and many people use them when traveling to access [webmail](#) and [instant messaging](#) services to keep in touch with family and friends. Apart from travelers, in many developing countries Internet cafés are the primary form of Internet access for citizens as a shared-access model is more affordable than personal ownership of equipment. (Wikipedia.org)

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet).

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See “Information Needs & Watering Holes” on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: A “rural” area. Urban vs. non-urban classifications vary by country.

Public Library: A public library is a [library](#) which is accessible by the [public](#) and is generally funded from public sources (such as [tax](#) monies) and may be operated by [civil servants](#). Taxing bodies for public libraries may be at the [municipal](#), [district](#) covering several municipalities, [county](#), [state](#), or [federal](#) level. Public libraries exist in most nations of the world and are often considered an essential part of having an educated and literate population. Public libraries are distinct from [research libraries](#), [school libraries](#), or other [special libraries](#) in that their mandate is to serve the public’s information needs generally (rather than serve a particular school, institution, or research population). Public libraries typically are [lending libraries](#), allowing users to take books and other materials off the premises; they also have non-circulating [reference](#) collections. Public libraries typically focus on popular materials such as popular [fiction](#) and [movies](#), as well as educational and [nonfiction](#) materials of interest to the general public; [Internet](#) access is also often offered. (Wikipedia.org)

Telecentre: A telecentre is a public place where people can access [computers](#), the [Internet](#), and other digital technologies that enable people to gather information, create, learn, and communicate with others while they develop essential 21st-century digital skills. While each telecentre is different, their common focus is on the use of digital technologies to support community, economic, educational, and social development—reducing isolation, bridging the digital divide, promoting health issues, creating economic opportunities, and reaching out to youth for example. Telecentres exist in almost every country, although they sometimes go by different names (e.g., village knowledge centers, infocenters, community technology centers (CTCs), community multimedia centers (CMCs) (Wikipedia.org)

The description of the Landscape Study is also the same across all 25 reports, as follows:

CIS’s Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafés. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

ANNEX: Other Comparison Charts and Tables

Overall Access Comparisons

Chart 1a: Total public access ICT venues by country (libraries, telecenters, cybercafes and other)

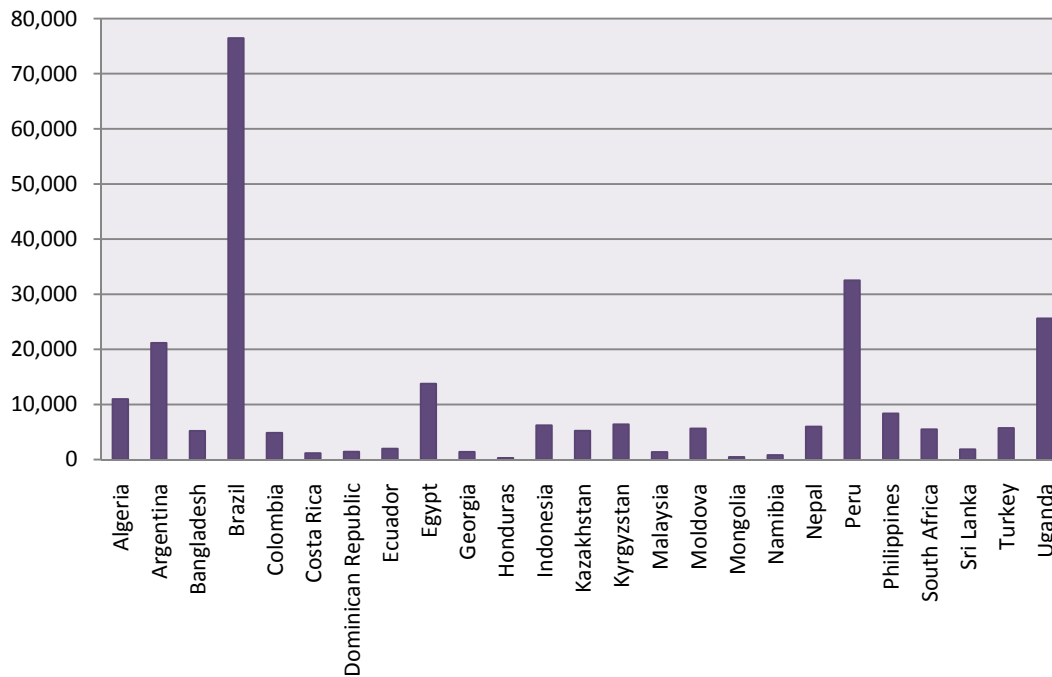


Chart 1b: Population per public public access ICT venue (libraries, telecenters, cybercafes and other)

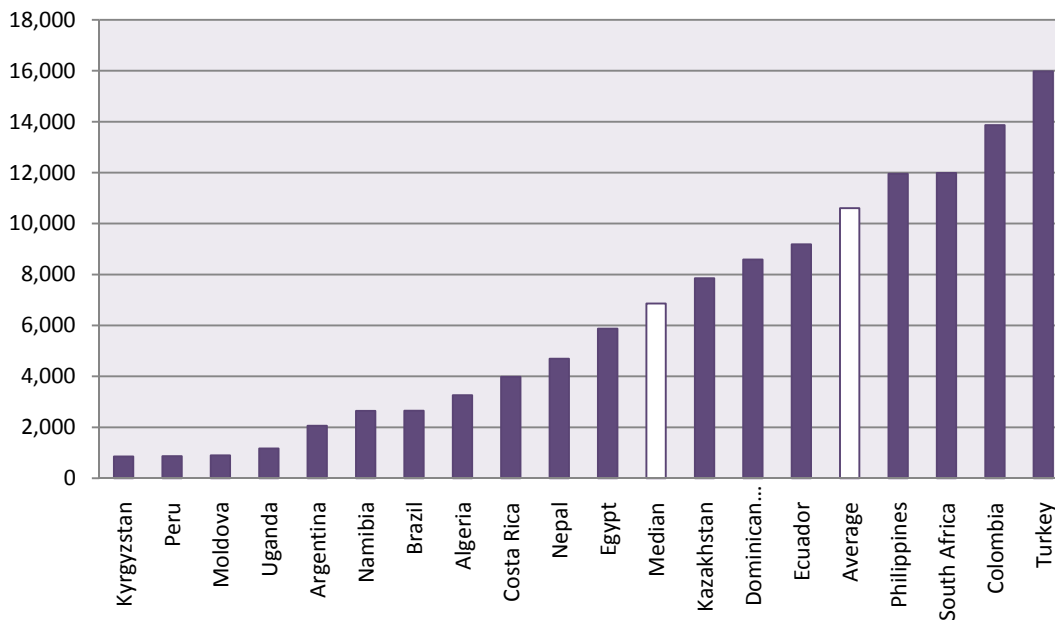
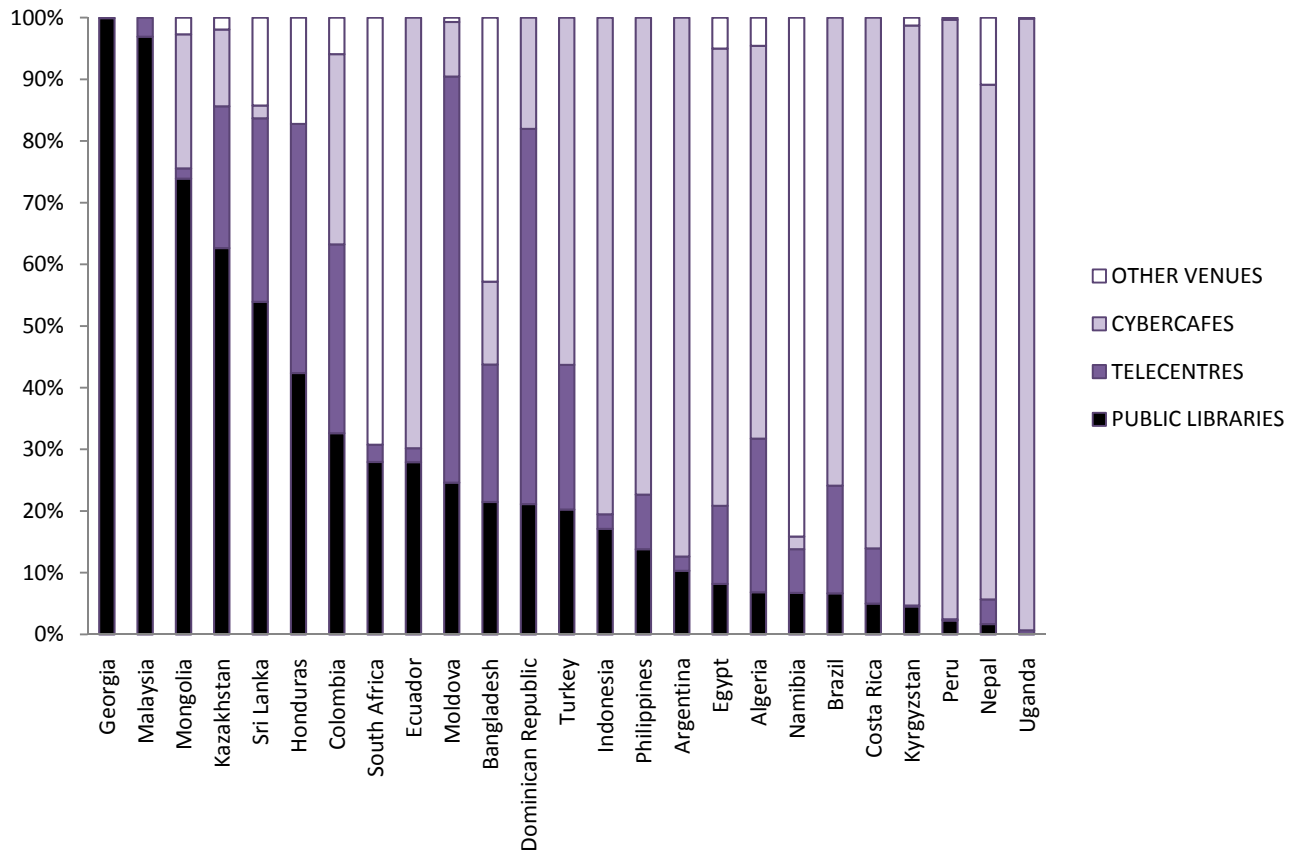


Chart 1c: Composition of public access ICT venues by country (libraries, telecenters, cybercafes, other)



Library Comparisons

Chart 2a: Number of public libraries by country

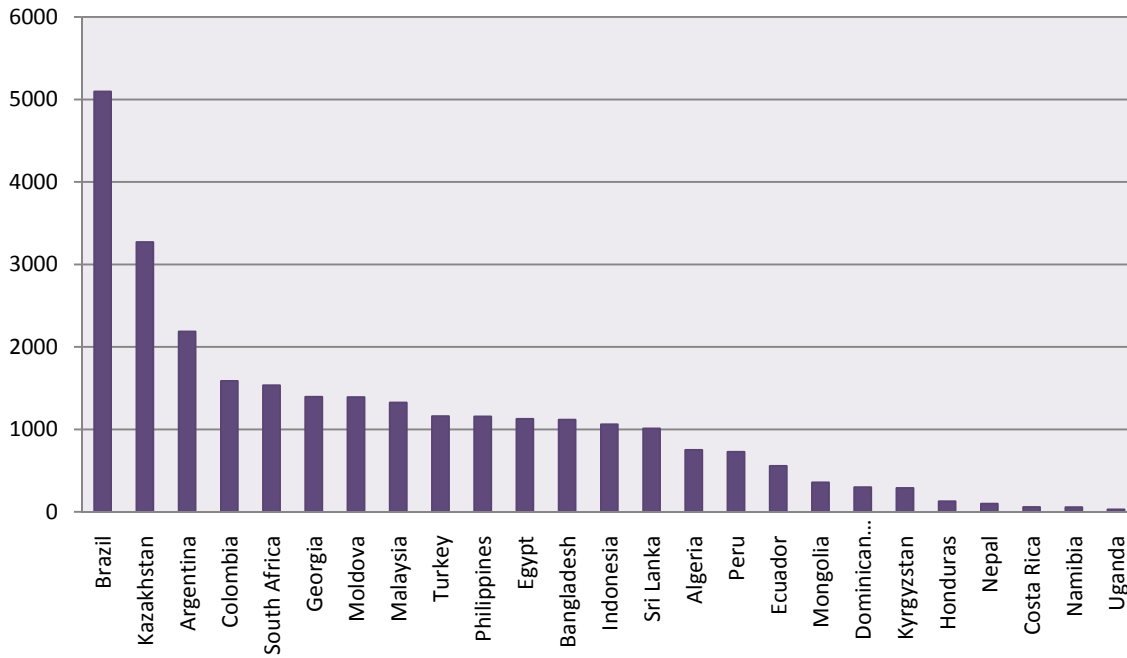
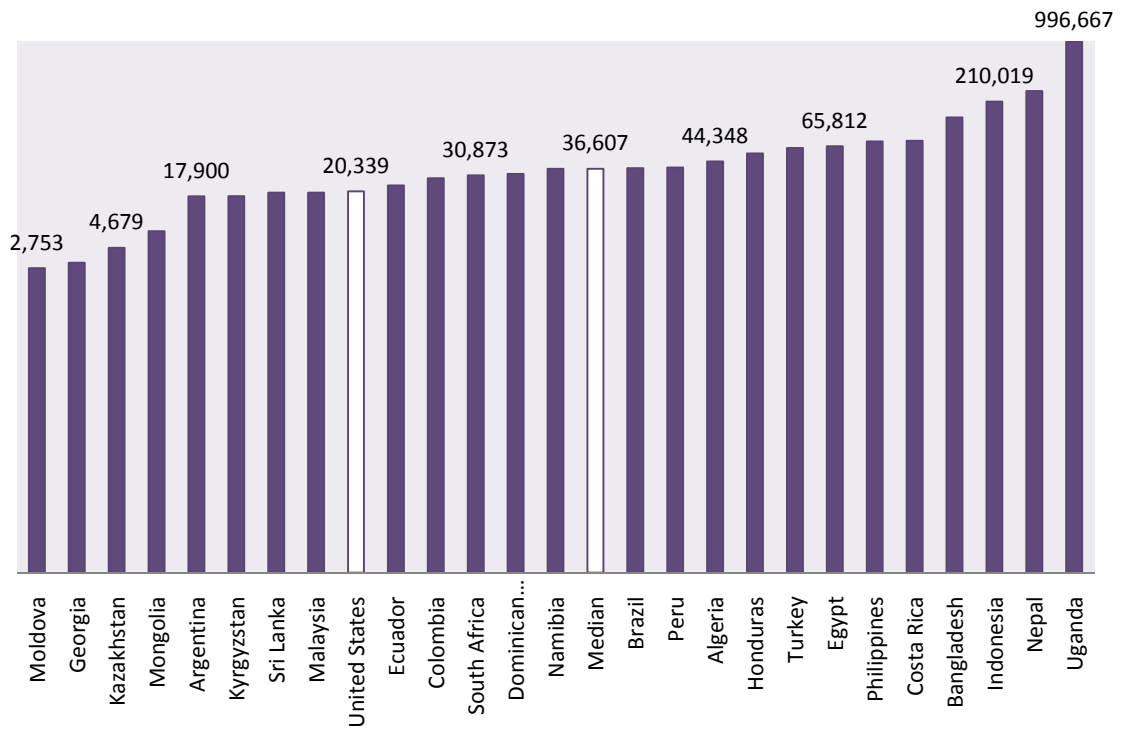


Chart 2b: Population per library (log scale)



Telecenter Comparisons

Chart 3a: Number of telecenters by country

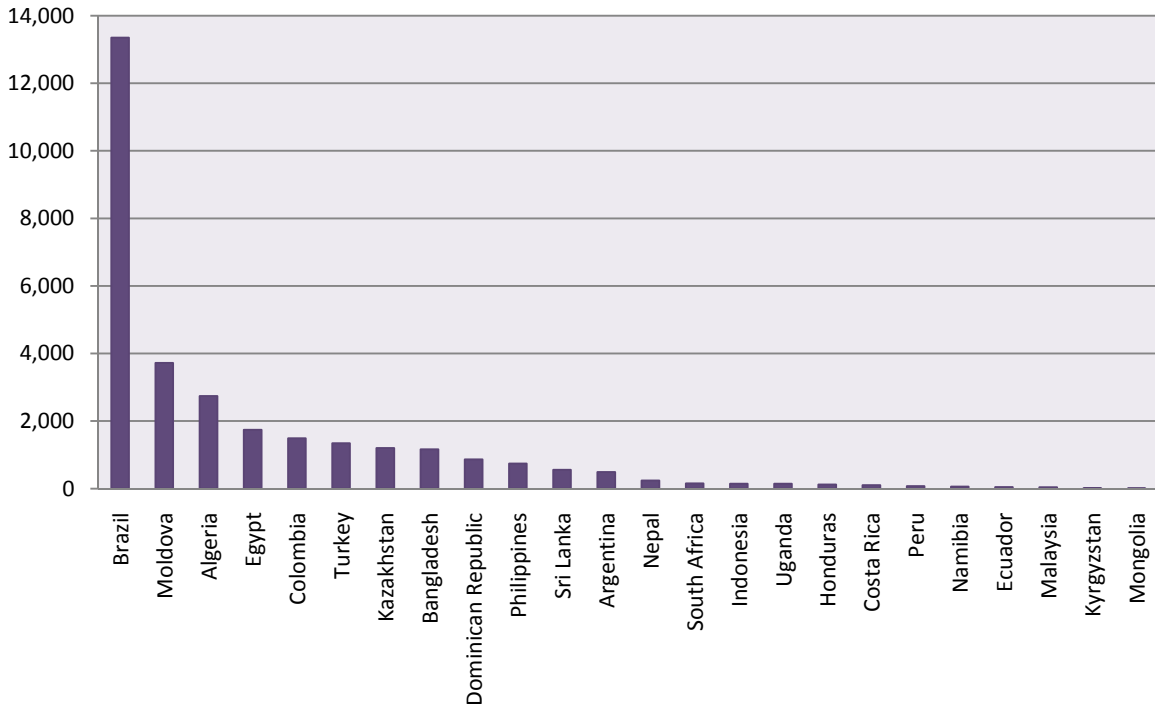
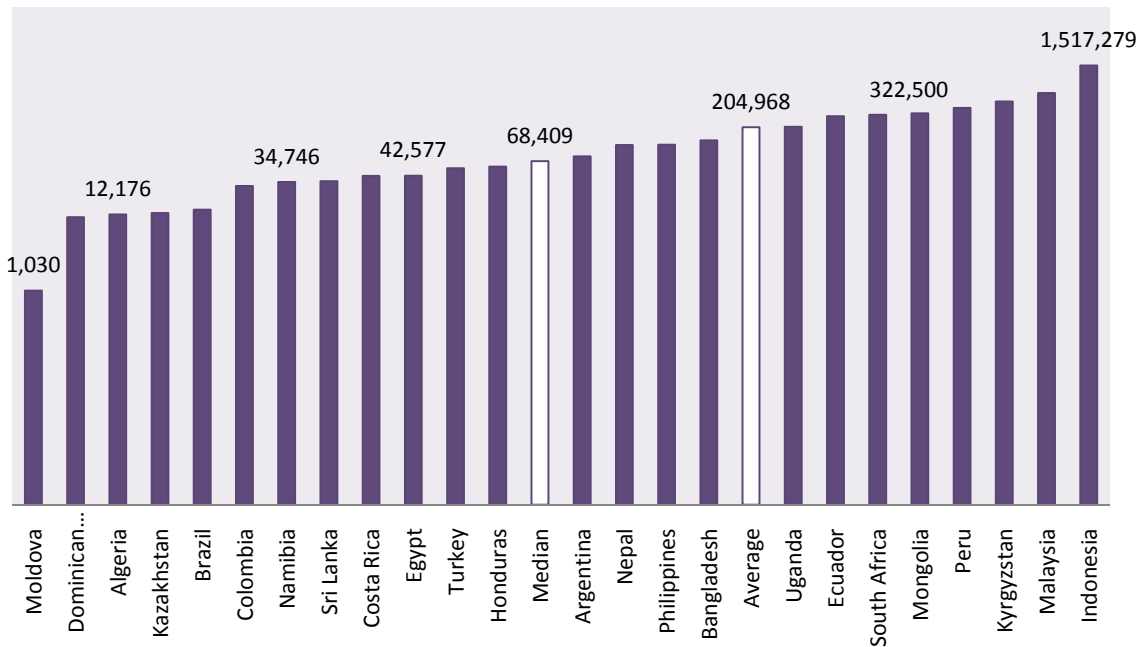


Chart 3b: Population per telecenter (log scale)



Cybercafe Comparisons

Chart 4a: Number of cybercafes by country

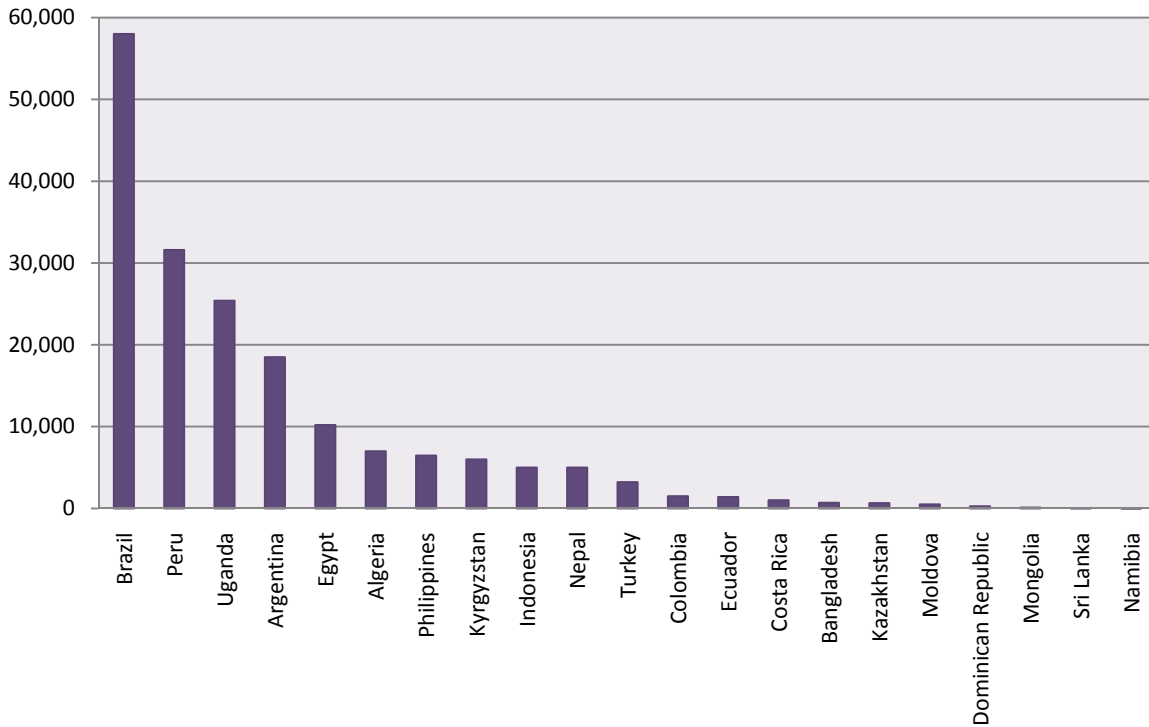
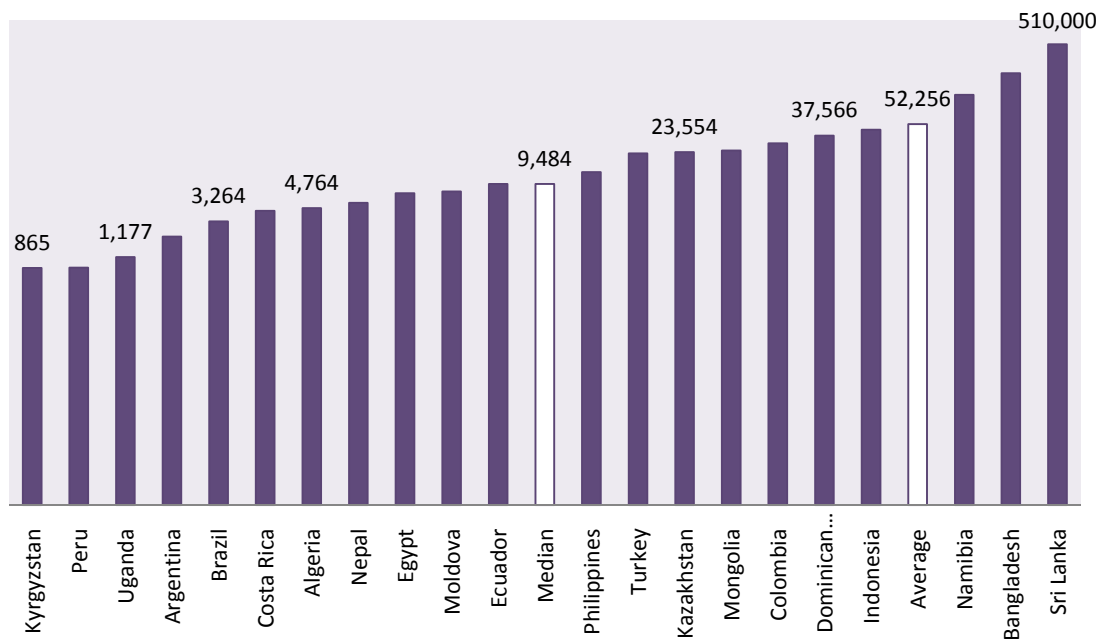


Chart 4b: Population per cybercafe (log scale)



Other Venue Comparisons

Chart 5a: Number of other venues by country

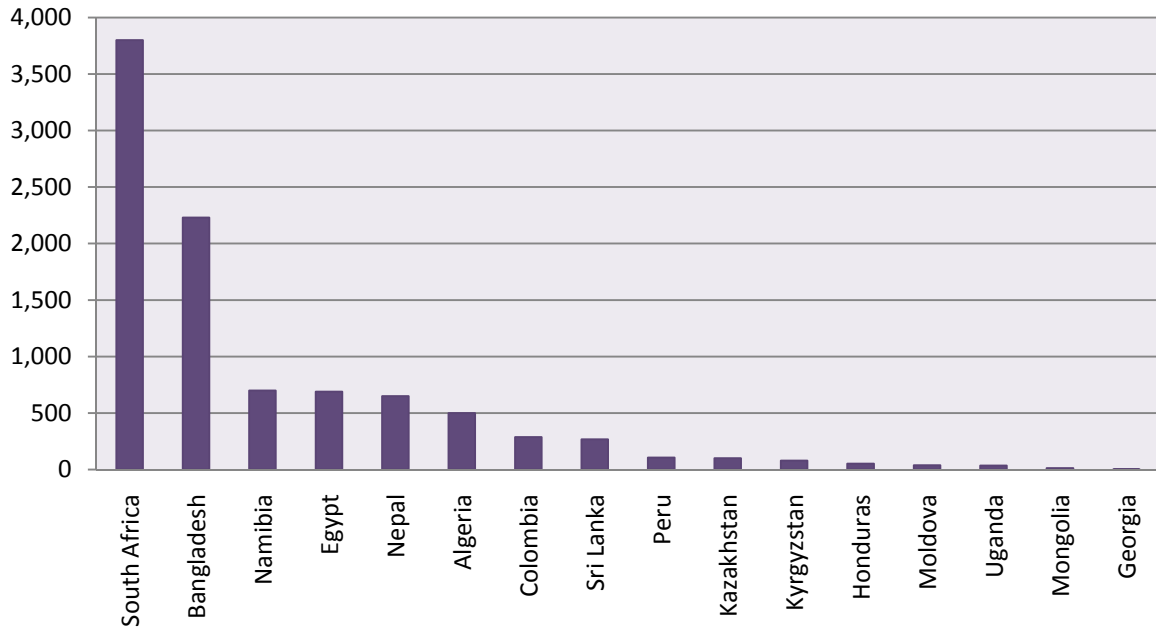
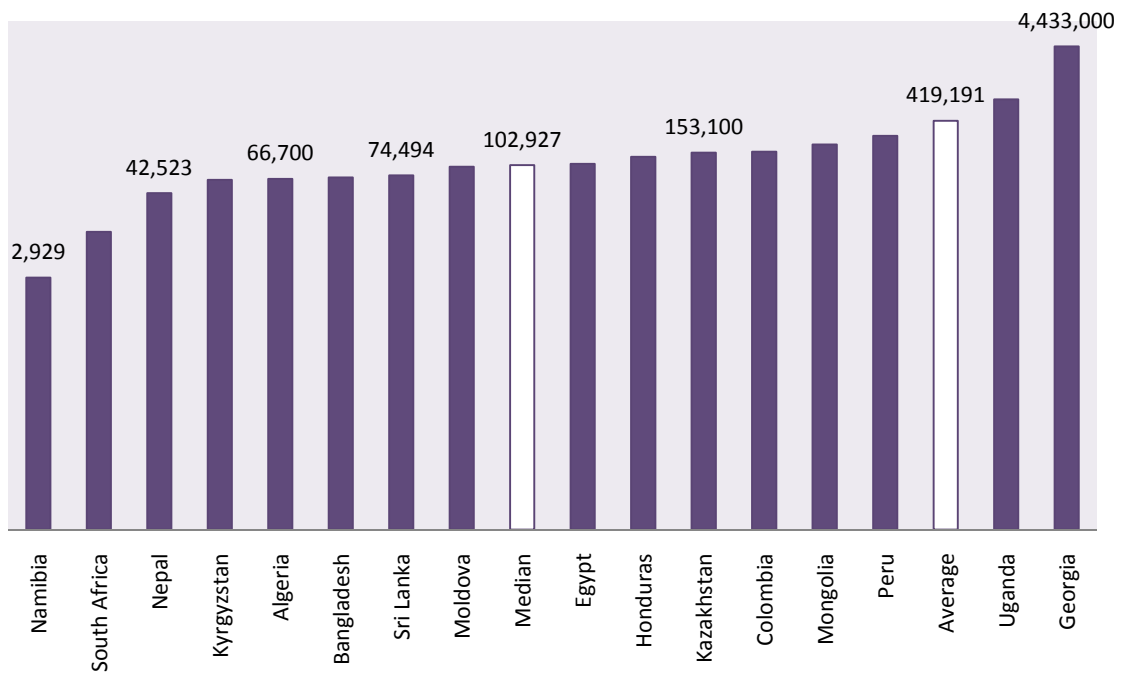


Chart 5b: Population per other venue (log scale)



Data Table

COUNTRY	2006 POPULATION (MILLIONS)	OF WHICH URBAN (MILLIONS)	TOTAL NUMBER OF PUBLIC ACCESS ICT VENUES	LIBRARIES					TELECENTERS				
				NUMBER OF PUBLIC LIBRARIES	OF WHICH URBAN	AS % OF ALL PUBLIC ACCESS ICT		POPULA- TION PER LIBRARY	NUMBER OF TELECENTRES	OF WHICH URBAN	AS % OF ALL PUBLIC ACCESS ICT		% WITH ICT
						VENUES IN COUNTRY	WITH ICT				VENUES IN COUNTRY	WITH ICT	
Algeria	33.35	21.32	10,991	752	500	6.84%	35	44,348	2,739	2,200	24.92%	10	
Argentina	39.13	35.32	21,177	2,186	2,011	10.32%	61	17,900	491	414	2.32%	100	
Bangladesh	155.99	39.84	5,211	1,119	819	21.47%	10	139,401	1,162	750	22.30%	100	
Brazil	189.32	160.28	76,448	5,097	4,870	6.67%	<15	37,143	13,351	N/A	17.46%	100	
Colombia	45.46	33.26	4,867	1,588	1,588	32.63%	16	28,627	1,490	1,490	30.61%	100	
Costa Rica	4.399	2.737	1,162	58	14	4.99%	100	75,845	104	5	8.95%	100	
Dominican Rep.	9.617	6.494	1,420	300	98	21.13%	ND	32,057	864	ND	60.85%	ND	
Ecuador	13.202	8.354	1,994	557	213	27.93%	4	23,702	45	15	2.26%	100	
Egypt	74.17	31.88	13,752	1,127	230	8.20%	20	65,812	1,742	608	12.67%	100	
Georgia	4.433	2.318	1,397	1,396	178	99.93%	20	3,176	ND	ND	ND	ND	
Honduras	6.969	3.272	302	128	128	42.38%	52	54,445	122	ND	40.40%	ND	
Indonesia	223.04	109.78	6,209	1,062	ND	17.10%	2	210,019	147	43	2.37%	100	
Kazakhstan	15.31	8.81	5,222	3,272	374	62.66%	100	4,679	1,200	1,000	22.98%	100	
Kyrgyzstan	5.19	1.87	6,380	289	145	4.53%	20	17,958	11	0	0.17%	100	
Malaysia	26.11	17.81	1,368	1,326	ND	96.93%	ND	19,691	42	0	3.07%	100	
Moldova	3.83	1.8	5,650	1,391	168	24.62%	ND	2,753	3,720	ND	65.84%	ND	
Mongolia	2.58	1.47	483	357	10	73.91%	5	7,227	8	3	1.66%	100	
Namibia	2.05	0.73	832	56	1	6.73%	100	36,607	59	0	7.09%	17	
Nepal	27.64	4.5	5,990	100	70	1.67%	33	276,400	240	168	4.01%	100	
Peru	27.59	20.09	32,507	729	390	2.24%	16	37,846	72	3	0.22%	100	
Philippines	86.26	54.73	8,370	1,156	1,156	13.81%	7	74,619	741	741	8.85%	1000	
South Africa	47.39	28.33	5,489	1,535	1,535	27.97%	25	30,873	154	0	2.81%	ND	
Sri Lanka	19.89	3	1,875	1,011	127	53.92%	0.1	19,674	558	77	29.76%	100	
Turkey	72.98	49.45	5,729	1,161	81	20.27%	23	62,860	1,343	1,155	23.44%	86	
Uganda	29.9	3.81	25,610	30	30	0.12%	10	996,667	144	10	0.56%	100	
TOTALS	1165.8	651.255	250,435	27,783	14,736	11.09%	31	92,813	30,549	8,682	12.71%	136	
AVERAGES	46.632	26.0502	10,017	1,111	641	11.09%	31	92,813	1,273	434	12.71%	136	

ND = No data

NA = Not applicable

Population data from World Bank: <http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=225>

CYBERCAFES

OTHER VENUES

COUNTRY	NUMBER OF CYBERCAFES	AS % OF ALL PUBLIC ACCESS ICT				POPULA- TION PER CYBERCAFE	NUMBER OF OTHER VENUES	AS % OF ALL PUBLIC ACCESS ICT				POPULA- TION PER OTHER VENUE
		OF WHICH URBAN	VENUES IN COUNTRY	WITH ICT	%			OF WHICH URBAN	VENUES IN COUNTRY	WITH ICT	%	
Algeria	7,000	5,000	63.69%	100	4,764	500	400	4.55%	10	66,700		
Argentina	18,500	18,500	87.36%	100	2,115	0	0	0.00%	NA			
Bangladesh	700	700	13.43%	100	222,843	2,230	830	42.79%	36	69,951		
Brazil	58,000	NA	75.87%	100	3,264	0	0	0.00%	NA			
Colombia	1,501	1,501	30.84%	100	30,286	288	208	5.92%	2	157,847		
Costa Rica	1,000	ND	86.06%	100	4,399	0	0	0.00%	NA			
Dominican Rep.	256	ND	18.03%	ND	37,566	0	0	0.00%	NA			
Ecuador	1,392	ND	69.81%	ND	9,484	0	0	0.00%	NA			
Egypt	10,194	3,513	74.13%	100	7,276	689	432	5.01%	30	107,649		
Georgia	ND	ND	ND	ND	ND	1	1	0.07%	100	44,330,000		
Honduras	ND	ND	ND	ND	ND	52	1	17.22%	1	1,340,192		
Indonesia	5,000	4,000	80.53%	100	44,608	0	0	0.00%	NA			
Kazakhstan	650	550	12.45%	100	23,554	100	50	1.91%	ND	153,100		
Kyrgyzstan	6,000	5,200	94.04%	100	865	80	0	1.25%	100	471,818		
Malaysia	ND	ND	ND	ND	ND	0	0	0.00%	NA	621,667		
Moldova	500	350	8.85%	100	7,660	39	39	0.69%	100	98,205		
Mongolia	105	60	21.74%	100	24,571	13	0	2.69%	100	198,462		
Namibia	17	13	2.04%	100	120,588	700	300	84.13%	100	2,929		
Nepal	5,000	4,200	83.47%	100	5,528	650	390	10.85%	13	42,523		
Peru	31,600	30,600	97.21%	100	873	106	106	0.33%	92	260,283		
Philippines	6,473	6,473	77.34%	100	13,326	0	0	0.00%	NA			
South Africa	ND	ND	ND	ND	ND	3,800	60	69.23%	25	12,471		
Sri Lanka	39	9	2.08%	100	510,000	267	10	14.24%	100	74,494		
Turkey	3,225	850	56.29%	26	22,629	0	0	0.00%	NA			
Uganda	25,400	ND	99.18%	ND	1,177	36	5	0.14%	15	830,556		
TOTALS	182,552	81,519	86.78%	96	52,256	9,551	2,832	3.81%	55	2,872,873		
AVERAGES	8,693	5,095	86.78%	96	52,256	382	113	3.81%	55	2,872,873		



Algeria

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Public access to ICT in Algeria faces significant challenges. The country has severe inequities with regard to public information access, and has no strategic national plans to address these inequities. It ranks low on public access, capacity and environment measures, and does not have a high level of needs, readiness or political will for making ICT policy reforms. Libraries in the country account for only 7% of all public access ICT points.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Significant
Needs	Moderate
Needs (rank)	16/25
Readiness	Moderate
Readiness (rank)	15/25

Findings

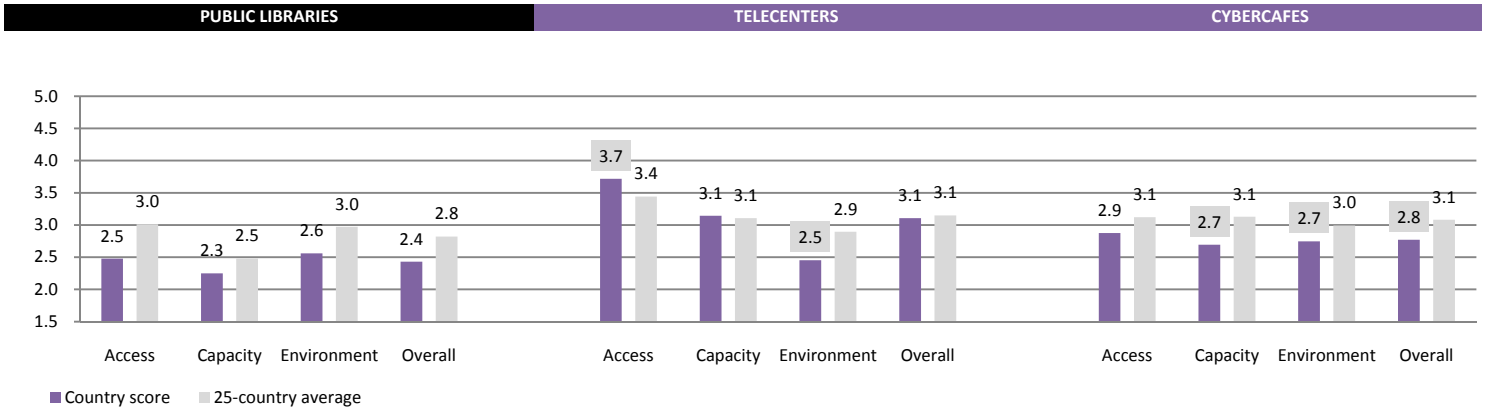
Gender, disability, age, and literacy levels all play large roles in limiting public access to ICT in Algeria. The result is broad inequity in a variety of issues ranging from employment opportunities to financial aid, social security, travel and immigration information, news about events in remote and rural communities, and student access to computers for doing homework.

Telecommunications and civil construction are becoming increasingly important in 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.

Other key observations include:

- 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, social 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 venues often are not readily accessible for 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

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	10,991	10,017	5,489	752	1,111	1,062	2,739	1,273	366	7,000	8,693	3,225	500	398	46
number with ICT	7,587	9,802	5,122	263	349	96	274	1,149	257	7,000	8,507	3,251	50	146	13
% with ICT	69%	98%	87%	35%	31%	20%	10%	90%	100%	100%	98%	100%	10%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	7%	11%	20%	25%	12%	11%	64%	73%	67%	5%	4%	1%
POP. PER VENUE ('000)	3	8	5	44	93	37	12	205	68	5	52	9	67	419	103
with ICT ('000)	4	15	6	127	2,093	208	122	242	119	5	62	10	667	1,354	198

* See the last page for country-specific definitions of venues. For this country, "other venues" refers to private and religious libraries.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	15%	28%	10%	35%	NA	26%	NA	24%	15%	26%	15%	24%
	Medium income	60%	54%	60%	46%	NA	56%	NA	45%	80%	56%	80%	45%
	High income	25%	7%	30%	6%	NA	9%	NA	4%	5%	9%	5%	4%
EDUCATION	No formal education	5%	3%	2%	2%	NA	5%	NA	6%	10%	5%	10%	6%
	Only elementary	10%	16%	10%	21%	NA	14%	NA	13%	5%	14%	5%	13%
	Up to high school	60%	50%	65%	36%	NA	37%	NA	32%	60%	37%	60%	32%
	College or university	25%	28%	23%	19%	NA	40%	NA	28%	25%	40%	25%	28%
AGE	14 and under	10%	12%	30%	15%	NA	9%	NA	14%	15%	9%	20%	14%
	15-35	80%	72%	50%	51%	NA	74%	NA	57%	60%	74%	65%	57%
	36-60	9%	12%	15%	23%	NA	12%	NA	8%	24%	12%	14%	8%
	61 and over	1%	2%	5%	2%	NA	0%	NA	1%	0%	0%	0%	1%
GENDER	% female	62%	53%	63%	49%	NA	39%	NA	39%	30%	39%	20%	39%

NA=Not applicable
 Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

This study identified several factors that limit 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.
- There is no system to monitor and register cybercafés, whose number has grown exponentially (from 100 in the year 2000 to 5,000 in 2005 to 7,000 currently).
- Information venues are not conveniently located in communities and seldom even exist in remote and rural areas.
- Most Internet content is in English while most of the population uses Arabic, French, or Berber. There is a need for more content development in Arabic.
- 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.

Recommendations

The key recommendations from this study are that in order to improve public access to ICT, Algeria should:

- Significantly reduce the mass of 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 the National Library mobile bus system, which provides portable library materials combined with cybercafé services, by using e-tuk tuk as a model (see report for details).
- Provide greater capital investments and allocations in the education of library staff. Improve training methods to emphasize user communication and education regarding information and ICT skills.
- Further encourage the implementation of the “IFLA/UNESCO, Public Library Manifesto 1994”.

Furthermore, the appropriate national government agencies should complete the following important actions:

- Promote the concept of public telecenters throughout the country. 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 Algeria Telecom); and local NGOs devoted to help underserved communities.
- Promote free access, or ensure a fee structure that enables easy access to low-income users.
- 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 (post offices, banks, and municipal service facilities) and high-traffic locations such as bus stations, markets, stadiums, mosques, cafés, etc.
- Through the Ministry of ICTs, encourage private investments and promote the widespread installation of wireless technology in rural, mountainous, and desert provinces and regions.
- Encourage the Ministry of ICT’s Government Internet Network (RIGProject) toward implementing e-administration.

Geography & Economy

The Republic of Algeria is located in North Africa on the southern coast of the Mediterranean Sea. It borders with Morocco to the west, Tunisia and Libya to the east, and Mali, Mauritania, and Nigeria to the south. The country spans more than two million square kilometers and is composed mostly of sparsely populated desert and mountains.

Algeria is an important participating member of the Oil Producing and Exporting Countries (OPEC) cartel, and the oil industry has contributed heavily to Algeria's well-financed economy. In the past decade, Algeria has benefited from an increasing flow of foreign investments, which had been slow to develop in previous years when the country had experienced periods of turmoil.

COUNTRY PROFILE	
Total population* (millions)	33.4
Urban population* (millions)	21.3
Literacy (%)	68.9
E-readiness	3.63
Gini	0.35

*World Bank 2006 data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafés. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés: Dominate the public access scene in Algeria because of many advantages: simplicity, Internet advantages, answer basic human need for intimacy and freedom.

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet).

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

NGO Information Service Centers: May be reading rooms, Internet centers, and sometimes libraries.

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country.

Private & religious libraries: Mostly libraries in mosques, usually composed of collections of ancient manuscripts.

Public libraries: These come in multiple forms, including municipal libraries, cultural center libraries, museum libraries, libraries of Islamic cultural centers, and the National Library.

Front photo: The reading room of the public library of Douaouda city (an ancient church transformed into a library). Here, a library user is shown sitting next to the librarian, the only person in the library with access to ICT. Photo courtesy of Algeria research team.



Argentina

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Argentina places a high value on incorporating technology into daily life. Increasing numbers of people use or are interested in using ICT services to fulfill their information and communication needs. The country appears to be an extremely favorable landscape for developing and implementing policies and strategies to increase public access to information, and to create and disseminate content with both local and national interest. Argentina had the highest ACE scores of all countries in this study.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Quick win
Needs	Low
Needs (rank)	17/25
Readiness	Moderate
Readiness (rank)	9/25

Findings

Argentina places a high value on incorporating technology into daily life. Increasing numbers of people use or are interested in using ICT services to fulfill their information and communication needs. The country appears to be an extremely favorable landscape for developing and implementing policies and strategies to increase public access to information, and to create and disseminate content with both local and national interest. Argentina had the highest ACE scores of all countries in this study, thanks to a strong network of popular libraries that complements the public library system, a strong penetration of cybercafés, and a significant body of telecenters in both urban and non-urban areas of the country.

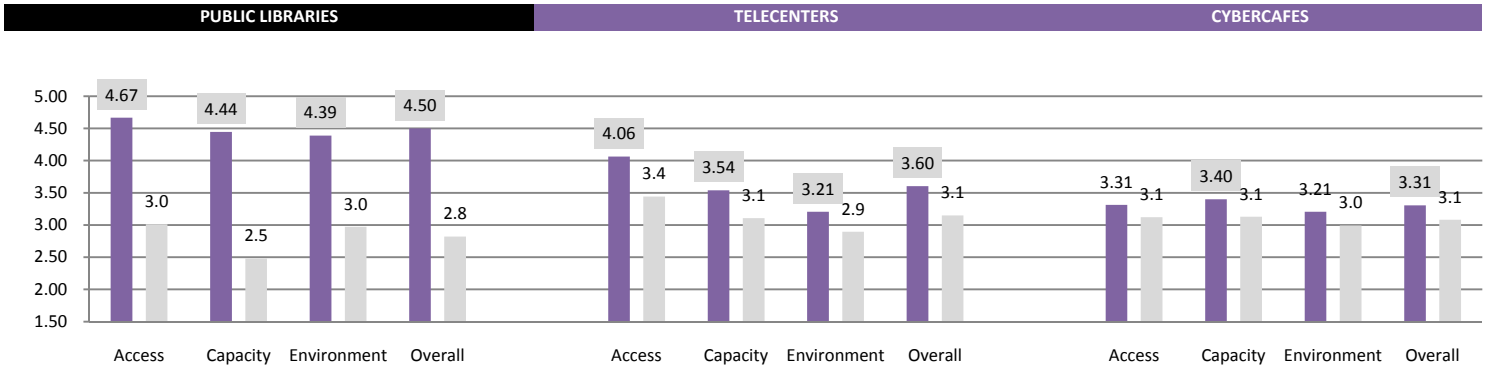
Argentina is experiencing a significant and rapid increase in the penetration of landline and mobile telephony and broadband connections. While Argentina has a relatively advanced information-based society, the general population does not have ready and open access to universal service. The infrastructure 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.

In Argentina it is impossible to separate Public Libraries from Popular Libraries (libraries with non-government funding). Thus, the results for public libraries are not strictly comparable to other countries in this study.

Recommendations

The research team identified success factors that would improve the capacities of the various venues through digital ICTs and would help to 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:

ACE Scores



■ Country score ■ 25-country average

Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	21,177	10,017	5,489	2,186	1,111	1,062	491	1,273	366	18,500	8,693	3,225	0	398	46
number with ICT	20,324	9,802	5,122	1,333	349	96	491	1,149	257	18,500	8,507	3,251	0	146	13
% with ICT	96%	98%	87%	61%	31%	20%	100%	90%	100%	100%	98%	100%	NA	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	10%	11%	20%	2%	12%	11%	87%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	2	8	5	18	93	37	80	205	68	2	52	9	NA	419	103
with ICT ('000)	2	15	6	29	2,093	208	80	242	119	2	62	10	NA	1,354	198

NA=Not applicable

See the last page for country-specific definitions of venues

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	ND	28%	ND	35%	ND	26%	ND	24%	ND	26%	ND	24%
	Medium income	ND	54%	ND	46%	ND	56%	ND	45%	ND	56%	ND	45%
	High income	ND	7%	ND	6%	ND	9%	ND	4%	ND	9%	ND	4%
EDUCATION	No formal education	ND	3%	ND	2%	ND	5%	ND	6%	ND	5%	ND	6%
	Only elementary	ND	16%	ND	21%	ND	14%	ND	13%	ND	14%	ND	13%
	Up to high school	ND	50%	ND	36%	ND	37%	ND	32%	ND	37%	ND	32%
	College or university	ND	28%	ND	19%	ND	40%	ND	28%	ND	40%	ND	28%
AGE	14 and under	ND	12%	ND	15%	ND	9%	ND	14%	ND	9%	ND	14%
	15-35	ND	72%	ND	51%	ND	74%	ND	57%	ND	74%	ND	57%
	36-60	ND	12%	ND	23%	ND	12%	ND	8%	ND	12%	ND	8%
	61 and over	ND	2%	ND	2%	ND	0%	ND	1%	ND	0%	ND	1%
GENDER	% female	ND	53%	ND	49%	ND	39%	ND	39%	ND	39%	ND	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

- Ensure their strong integration into the communities
- Maintain open access to their services.
- Expand and improve the activities they provide
- Guarantee the continued support they receive from the government, and
- 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.

Based on the results of this study, five key recommendations emerged:

1. **Reduce inequities:** Any policy or initiative involving public access to information should be designed to reduce the inequities caused by gender, socio-economic groups, and territories, and to guarantee the rights of the public to access information freely and 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. **Encourage and educate users:** Social strategies should encourage and educate users by using training courses and community activities to make the best use of ICTs. This 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. **Promote transparency:** 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 training citizens to participate in the e-government and in e-democracy processes.
4. **Establish strong cooperative partnerships:** 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 the implementation and use of public information venues. This could help to establish venues by, encouraging partnerships among the public, private, and associative sectors.
5. **New national digital agenda:** 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, better serve the users, and 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 the most popular and widely used form of ICT in Argentina. E-government services and information concerning everyday needs could be transmitted via cell phones at low cost.

Geography & Economy

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 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, but 23 percent of the population lives below the poverty line. The educational level is relatively good, especially in urban areas with ready access to public schools and universities.

The population is composed of a wide range of ethnicities, races, and origins. The majority of the population is composed of people who are predominantly of European descent. The most common ethnic groups are Italian and Spaniard.

Argentina is located at the southern extent of South America between the Andes Mountains to the west and the southern Atlantic Ocean on the east. It is the second largest country in South America after Brazil and the eighth largest country in the world.

COUNTRY PROFILE	
Total population* (millions)	39.1
Urban population* (millions)	35.3
Literacy (%)	97
E-readiness	5.40
Gini	0.53

*World Bank 2006 data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés: Commercial micro enterprise or franchise, where users pay per hour or per minute for Internet usage.

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet).

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country.

Public/Popular Libraries: *Public libraries* created by a government or public institution, and *Popular Libraries*, which are autonomous civil associations created by communities.

Telecenters: Private parlours implemented by the main telephone enterprises: Telefónica de Argentina, Telecom Argentina, and IPLan.

Front photo: Inside the Buenos Aires public library. Photo courtesy of prosepina (Flickr).



Bangladesh

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Public access to ICT in Bangladesh is poor. The country has high needs and very low readiness, making for significant challenges ahead. Much of the population is poor and illiterate, local language content is scarce, and gender inequity is an issue. Community libraries are the most typical type of public access ICT venue in Bangladesh. Public libraries fare better by comparison than the country's telecenters and cybercafés.

PUBLIC ACES LANDSCAPE	
Challenges ahead	Significant
Needs	High
Needs (rank)	5/25
Readiness	Low
Readiness (rank)	25/25

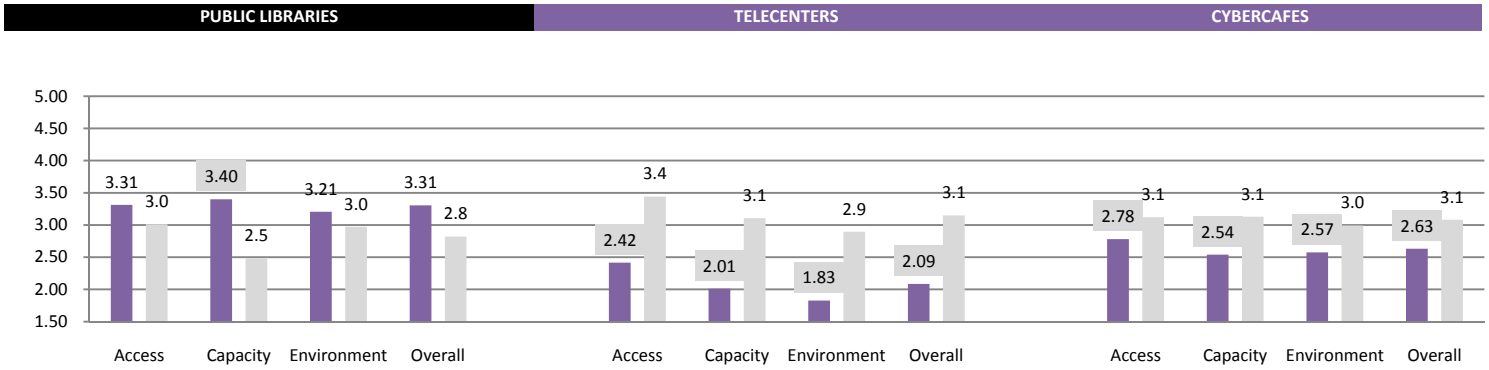
Findings

One of the major problems in all three types of venues studied is the lack of uninterrupted electrical power. The success of many public access venues is largely dependent on this single factor. The power supply issue is slightly less common in cybercafés. The study strongly recommends investment in equipment that consumes low power and which has a long battery life. This is the most effective solution for the non-urban areas, where the reliability of the power grid is most often described as 'dismal'. The power grid issue is not expected to improve in the foreseeable future.

Other findings from this study include:

- As might be expected, venues with an Internet connection are far more popular than those that do not offer Internet connectivity.
- Many venues are not easily accessible by women due to their location. Gender inequity is an issue; only 22% of urban public library user are women.
- In a related finding, more effort is needed to make public access venues truly public—especially with community libraries, telecenters, and public libraries—by introducing activities that involve greater numbers of the local population.
- More local language content is needed, and more people must be trained to use ICTs to be relevant to underserved people. The content also should be developed in a variety of forms (text, photos, and animation) and in innovative combinations, and be deliverable through multiple channels. Visualization and voice-enabled text would be particularly valuable to less well-educated people.
- The community library system in Bangladesh is large, accounting for over 40% of the country's public access ICT venues. Community libraries are community-oriented and better able to understand local needs. Also, community-driven initiatives and local funding sources are more effective than when these initiatives and sources exist in some distant agency or organization.

ACE Scores



■ Country score ■ 25-country average

Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	5,211	10,017	5,489	1,119	1,111	1,062	1,162	1,273	366	700	8,693	3,225	2,230	398	46
number with ICT	2,777	9,802	5,122	112	349	96	1,162	1,149	257	700	8,507	3,251	803	146	13
% with ICT	53%	98%	87%	10%	31%	20%	100%	90%	100%	100%	98%	100%	36%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	21%	11%	20%	22%	12%	11%	13%	73%	67%	43%	4%	1%
POP. PER VENUE ('000)	30	8	5	139	93	37	134	205	68	223	52	9	70	419	103
with ICT ('000)	56	15	6	1,394	2,093	208	134	242	119	223	62	10	194	1,354	198

* See the last page for country-specific definitions of venues. For this country, "other venues" refers to community libraries.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	11%	28%	40%	35%	20%	26%	60%	24%	14%	26%	0%	24%
	Medium income	69%	54%	60%	46%	70%	56%	30%	45%	54%	56%	0%	45%
	High income	20%	7%	0%	6%	10%	9%	10%	4%	32%	9%	0%	4%
EDUCATION	No formal education	0%	3%	0%	2%	0%	5%	8%	6%	0%	5%	0%	6%
	Only elementary	10%	16%	87%	21%	3%	14%	40%	13%	0%	14%	0%	13%
	Up to high school	67%	50%	13%	36%	33%	37%	31%	32%	0%	37%	0%	32%
	College or university	23%	28%	0%	19%	63%	40%	21%	28%	0%	40%	0%	28%
AGE	14 and under	3%	12%	67%	15%	0%	9%	2%	14%	0%	9%	0%	14%
	15-35	81%	72%	27%	51%	79%	74%	83%	57%	80%	74%	0%	57%
	36-60	10%	12%	6%	23%	20%	12%	15%	8%	20%	12%	0%	8%
	61 and over	5%	2%	0%	2%	0%	0%	0%	1%	0%	0%	0%	1%
GENDER	% female	22%	53%	45%	49%	22%	39%	61%	39%	36%	39%	0%	39%

Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

Recommendations

Public access to information and communication technology is limited in Bangladesh, and must be expanded. There is little networking between public access ICT venues, and this must also be expanded in order for information to become available to more locations. This study recommends that 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 a combination of voice, pictures, and text. This effort will benefit huge numbers of illiterate people in Bangladesh, and will be nearly impossible without the use of public access venues and ICT.

The majority of the potential venue users have extremely limited finances, and ICT-based venues should operate with minimal fees or be free to the users. This study recommends making Internet connectivity in all public access venues free. Universal Service Funds or free connection vouchers issued from the BTRC could be introduced.

The research team noted the inadequacy of secondary data, and this was particularly true for public libraries and cybercafés. The in-depth interviews 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.

The technical support system must be improved for the public access venues and be available through a common network to serve all public access venues.

Geography & Economy

Bangladesh is a small densely populated nation in Southeast Asia bordered by India, Myanmar, and the Indian Ocean. The country is quite flat geographically, making for relatively unimpeded signal transmissions.

The population of Bangladesh is 156 million. An estimated 40 to 50 percent live below the poverty line, and two-thirds have little or no formal education. Three-fourths live in rural areas and depend on agriculture for their livelihoods (there are few non-agricultural jobs beyond the urban areas). People under the age of 25 years make up more than half of the population (57.7 percent).

Bangladesh gained independence from Pakistan in 1971 and emerged as a parliamentary democracy, though one which has tended to be politically unstable and corrupt.

Until the global downturn of 2008, Pakistan's economy has been strong in recent years, growing at an average annual rate of five percent from 2001-6 and six percent in 2007.

COUNTRY PROFILE	
Total population* (millions)	156
Urban population* (millions)	39.8
Literacy (%)	47.9
E-readiness	3.03
Gini	0.47

*World Bank 2006 data

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Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Community libraries: Fully funded by non-government organizations and community contributions.

Cybercafés: For-profit venues that mainly serve demand for communication in urban and semi-urban areas.

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US gini is around 0.45.

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NGO: Non-governmental organization

Non-urban: A "rural" area. Urban vs. non-urban classifications vary by country.

Public libraries: 'Public' in this case is defined not as funded by the government, but rather in terms of access for public or common people; funded by private sector, NGOs, and small percentage government; few with ICTs and no training.

Telecenters: Venues whose focus is on information and knowledge services for underserved populations, usually in a not-for-profit or hybrid income model.

Front photo: Inside the BRAC Pirgacha Gonokendra Library. Photo courtesy of the Bangladesh research team.



Brazil

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Brazil is a very large and diverse country, which creates unique challenges with regard to public access to information and communication technology. The country is working hard to meet these challenges. Even though it has a high level of needs, this is matched by an even higher level of readiness. Much work remains, however, such as raising the country's functional literacy rate. Improving public access to ICT might help achieve this objective.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Slow gains
Needs	High
Needs (rank)	8/25
Readiness	High
Readiness (rank)	4/25

Findings

This regional, political, and demographic context influences the information and communication technology (ICT) landscape in several ways. For example, the huge size of the country and other geographical barriers like the Amazon Rainforest make it difficult to reach underserved people. By contrast, Brazil's high urbanization rate—which is over 90 percent in some regions—hinders physical access to government resources and initiatives, including ICT infrastructure. Regional diversity also reduces the effectiveness of generalized policies and initiatives.

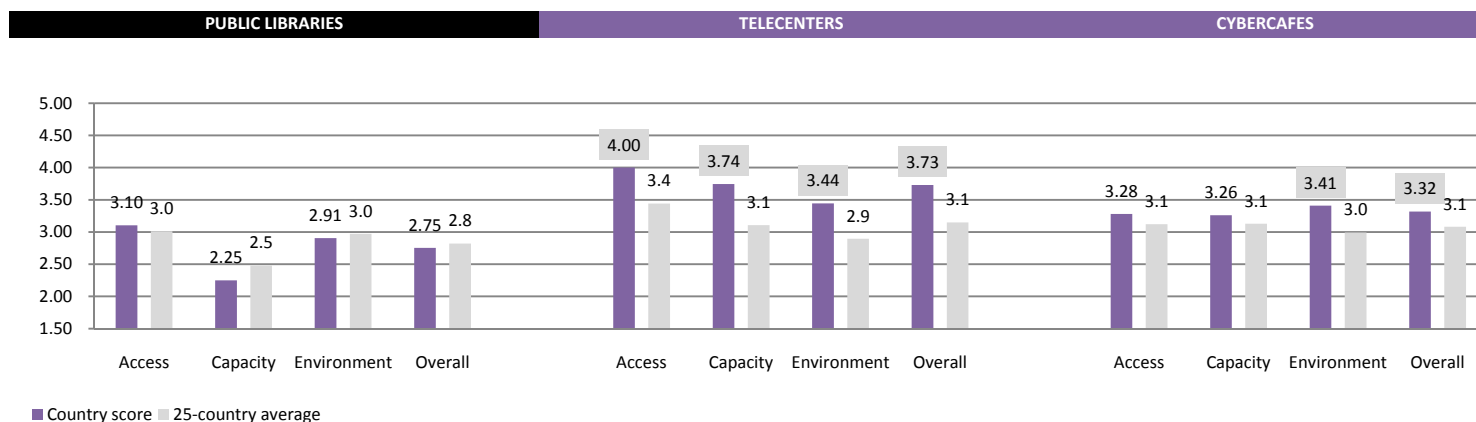
Still, access to ICTs in Brazil is being created and enhanced through public policies, private initiatives, and telecommunication industry agreements with the government. E-government services are available and growing, and content in Brazilian Portuguese is available on the Internet.

Brazil has also embraced NGO-driven social movements and continues to look to telecenters to improve ICT access and capacity. Currently, most programs with the resources to create telecenters originate mainly in NGOs or grassroots organizations. NGOs have increased in quantity and quality and meet many social needs, although these projects have serious sustainability and funding problems. The emergence of cybercafés run by small entrepreneurs in low-income communities has increased, and their success hinges on continued investment in the private sector.

Other key observations include:

- While increases in ICT access have been observed across all socioeconomic classes, access remains skewed toward the more privileged classes. Large numbers of people in Brazil lack the capacity to use ICTs effectively. The quality of public education is inadequate, producing many who are functionally illiterate.
- Education and age significantly influence public ICT access. For instance, most users had a high school education or less; only 27 percent had university degrees. In terms of age, most public

ACE Scores



■ Country score ■ 25-country average

Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	76,448	10,017	5,489	5,097	1,111	1,062	13,351	1,273	366	58,000	8,693	3,225	0	398	46
number with ICT	72,116	9,802	5,122	765	349	96	13,351	1,149	257	58,000	8,507	3,251	0	146	13
% with ICT*	94%	98%	87%	15%	31%	20%	100%	90%	100%	100%	98%	100%	NA	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	7%	11%	20%	17%	12%	11%	76%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	2	8	5	37	93	37	14	205	68	3	52	9	NA	419	103
with ICT ('000)	3	15	6	248	2,093	208	14	242	119	3	62	10	NA	1,354	198

NA=Not applicable

See the last page for country-specific definitions of venues

* For public libraries, country research team noted that the percent with ICT was <15%

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	ND	28%	ND	35%	ND	26%	ND	24%	ND	26%	ND	24%
	Medium income	ND	54%	ND	46%	ND	56%	ND	45%	ND	56%	ND	45%
	High income	ND	7%	ND	6%	ND	9%	ND	4%	ND	9%	ND	4%
EDUCATION	No formal education	0%	3%	ND	2%	0%	5%	ND	6%	0%	5%	ND	6%
	Only elementary	0%	16%	ND	21%	8%	14%	ND	13%	8%	14%	ND	13%
	Up to high school	23%	50%	ND	36%	46%	37%	ND	32%	33%	37%	ND	32%
	College or university	77%	28%	ND	19%	46%	40%	ND	28%	58%	40%	ND	28%
AGE	14 and under	0%	12%	ND	15%	0%	9%	ND	14%	0%	9%	ND	14%
	15-35	57%	72%	ND	51%	92%	74%	ND	57%	69%	74%	ND	57%
	36-60	43%	12%	ND	23%	8%	12%	ND	8%	31%	12%	ND	8%
	61 and over	0%	2%	ND	2%	0%	0%	ND	1%	0%	0%	ND	1%
GENDER	% female	93%	53%	ND	49%	62%	39%	ND	39%	46%	39%	ND	39%

ND=No data

Percentages may not add up to 100% in all cases

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Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

access users are younger people, but some Brazilian states forbid unaccompanied children under 12 from visiting cybercafés.

- All of the venues studied offer few services to address the capacity gap. Most users view public access venues as sources for communication rather than for information. Even libraries do not attract many users, though insufficient budgets and local culture are partly to blame for the lack of services.

Recommendations

The study revealed a number of weaknesses in the ability to access public information, such as the inadequacy of the public library system, but it also revealed new strengths, such as the expanding role of cybercafés and the opportunity for increasing collaboration among venue types. There is a strong need to place ICTs in underserved communities, and many ongoing ICT projects have not set clear goals. Additional ICT access studies are highly recommended.

ICTs can also be a valuable resource to stimulate academics. Despite the educational challenges, the high levels of illiteracy, and the poor results in national and international educational assessments, the use of ICTs—however simple—can play an important role in serving the people. There is an untapped opportunity for using public information access venues equipped with ICTs to stimulate learning in Brazil's underserved populations. ICTs are an excellent tool to transform the public's ability to think creatively, communicate effectively, and work interactively.

Other key recommendations include:

- Public access ICT venues need to be more community-oriented by tailoring their activities to local populations.
- Create module-based ICT courses to be offered by cybercafés or telecenters. Cybercafés could offer the courses as a paid service, and courses in cybercafés would help free them of their association with gaming and increase sustainability by attracting more young people, as well as adults searching for information or qualification.
- More libraries are needed, either in NGO-based telecenters or by creating smaller public library branches.
- Given the government's emphasis on IT laboratories in schools, opening up access to these venues during non-school hours would greatly enhance their social benefit. All urban schools in the country are projected to have a broadband equipped laboratory by 2010, and there is an opportunity to dramatically expand ICT access to underserved populations without investing in additional programs.

Geography & Economy

Brazil is the largest country in South America, and the fifth largest in the world with a land area of 8.5 million sq km and a population of nearly 190 million. Most of the country is covered by the Amazon Rainforest, which despite intensive deforestation remains the largest forest in the world and possesses 20 percent of the world's biodiversity (in the Amazon Basin and the Pantanal wetland).

Most Brazilians live in the country's eastern and Atlantic coast urban centers—São Paulo, Rio de Janeiro, Salvador, Belo Horizonte, and the capital city of Brasília. The country is divided into 26 states in five regions, each with its distinctive geography, economic activity, and culture. Brazilian culture is an amalgam of indigenous, European, and African elements, all which are evident in the language and culture. While most share a common language (Portuguese), there are also demographic, economic, social, and educational inequities along these cultural and regional lines.

One-fourth of Brazil's population lives in poverty, and recurrent drought has crippled agricultural development and forced many Brazilians to migrate to the southern region, the country's most urban, well-developed, and industrial area.

COUNTRY PROFILE	
Total population* (millions)	189.3
Urban population* (millions)	160.3
Literacy (%)	88.2
E-readiness	5.45
Gini	0.58

*World Bank 2006 data

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ICTs: Information and communication technologies (especially computers and the Internet).

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: A "rural" area. Urban vs. non-urban classifications vary by country.

Public libraries: Offer free, unrestricted access to their collections, facilities, and equipment. Although regulated and supported by government (federal and municipal), not adequately invested in new libraries or ICT development, choosing instead to focus on developing book collections.

Telecenters: Hosted by nonprofit organizations to provide free public access to ICT; usually consisting of a room with computers connected to the Internet.

Front photo: Inside a busy telecenter in Sao Paulo. Photo courtesy of webmink (Flickr).



Colombia

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Colombia is committed to increasing public access to ICT over the next decade but faces an uphill climb. More public libraries are needed in order to improve non-urban access, along with more training for librarians, more local content, and better use of telecenters and government-backed ICT venues like schools. Colombia also needs to improve its culture of “reading.” Despite their shortcomings, Colombia’s libraries are performing at or above the mean for all 25 countries in this study; telecenters are performing at the mean and cybercafés are slightly below the mean.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	ND
Needs	ND
Needs (rank)	ND
Readiness	ND
Readiness (rank)	ND

*ND = No data

Findings

The government of Colombia has committed to a national plan that seeks to have all Colombians effectively and productively using ICTs by the year 2019. The stated goal of this plan is to improve social inclusion and increase competition. To that end, Internet connectivity has been increasing rapidly in the country, and 70% of Colombians report having easy access to public libraries.

However, the culture of “reading” is very weak in Colombia. Efforts to turn around this situation have not yet been very successful, despite the fact that there are many public libraries, cybercafés, and different types of telecenters in the country. In addition, many government offices also offer public access to ICT.

Public Libraries

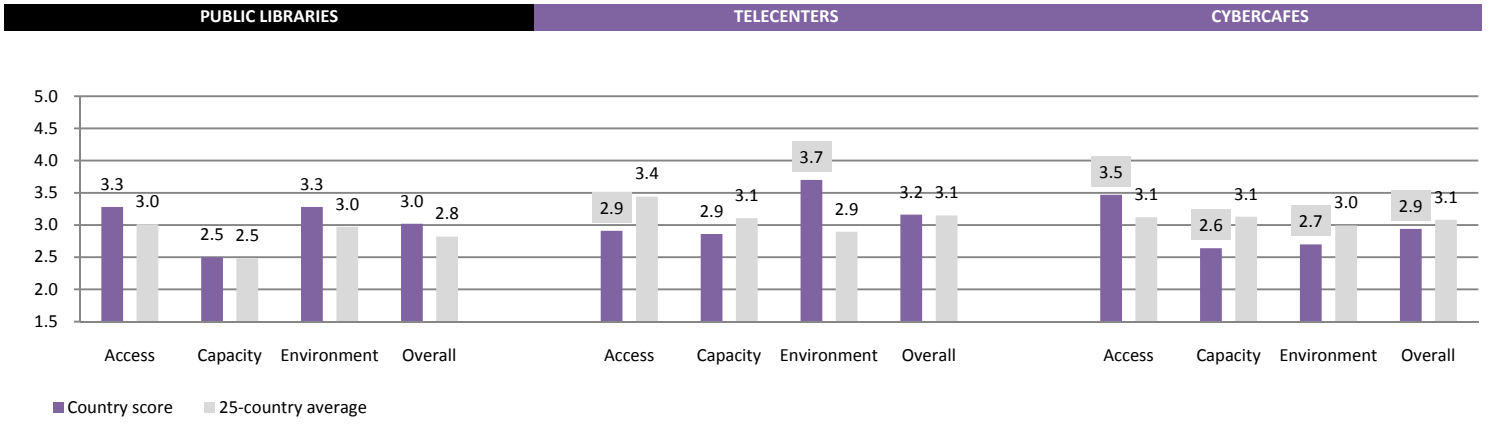
Despite the high visibility and success of some public libraries in the capital city of Bogota, there are many problems facing public libraries in the rest of the country, including:

- Not enough spending on infrastructure (not enough libraries, and not enough adequately updated libraries). The locations of libraries is an important factor in Colombia in choosing whether to use of this type of venue.
- Not enough spending on library services
- Not enough specialized training for libraries
- Understaffing (a single librarian is often the only staff on the premises, and
- Short working periods and inconvenient opening hours for wider use.

Telecentres

There are two types of telecenters in the country: those promoted by the program “Compartel” and those promoted by local government or non-governmental organizations. Community telecenters have helped bring ICTs into the daily life of many Colombians who previously had no access to ICT. The key findings with regard to telecenters in Colombia include:

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	4,867	10,017	5,489	1,588	1,111	1,062	1,490	1,273	366	1,501	8,693	3,225	288	398	46
number with ICT	3,251	9,802	5,122	254	349	96	1,490	1,149	257	1,501	8,507	3,251	6	146	13
% with ICT	67%	98%	87%	16%	31%	20%	100%	90%	100%	100%	98%	100%	2%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	33%	11%	20%	31%	12%	11%	31%	73%	67%	6%	4%	1%
POP. PER VENUE ('000)	9	8	5	29	93	37	31	205	68	30	52	9	158	419	103
with ICT ('000)	14	15	6	179	2,093	208	31	242	119	30	62	10	7,892	1,354	198

*See the last page for country-specific definitions of venues. For this country, "other venues" refers to other decentralized centers. All venues are urban due to municipal zoning classifications. Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	76%	28%	NA	35%	87%	26%	NA	24%	43%	26%	NA	24%
	Medium income	24%	54%	NA	46%	6%	56%	NA	45%	53%	56%	NA	45%
	High income	0%	7%	NA	6%	7%	9%	NA	4%	4%	9%	NA	4%
EDUCATION	No formal education	4%	3%	NA	2%	16%	5%	NA	6%	0%	5%	NA	6%
	Only elementary	13%	16%	NA	21%	15%	14%	NA	13%	23%	14%	NA	13%
	Up to high school	56%	50%	NA	36%	54%	37%	NA	32%	62%	37%	NA	32%
	College or university	27%	28%	NA	19%	15%	40%	NA	28%	15%	40%	NA	28%
AGE	14 and under	32%	12%	NA	15%	21%	9%	NA	14%	17%	9%	NA	14%
	15-35	53%	72%	NA	51%	65%	74%	NA	57%	72%	74%	NA	57%
	36-60	14%	12%	NA	23%	12%	12%	NA	8%	10%	12%	NA	8%
	61 and over	1%	2%	NA	2%	2%	0%	NA	1%	1%	0%	NA	1%
GENDER	% female	51%	53%	NA	49%	55%	39%	NA	39%	49%	39%	NA	39%

NA=Not applicable: All venues are considered urban due to municipal zoning classifications

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

- Many venues are unsuitable for adequate service
- Operators are frequently untrained and unqualified
- Most users do not have basic training with computers, and
- Understaffing: the telecenter operator is often the only staff member and is also responsible for administration of the venue.

Citizen's services offices

Government offices that offer public access to ICT have strong potential to increase use of ICT, especially when located in poor neighborhoods and small cities and towns. While many experiences are relatively new, they appear to be successful as they have local government support, and their operators are trained and offer good customer service. Citizens tend to like them because they meet different needs in a single location. Thanks to the availability of ICT in these venues, users can experience some of the advantages of ICT to conduct business (licenses, permits, etc.) with the local government. In this way, their first encounter with ICT is done inside a local government office and with the help of a public servant as a facilitator. This is a model that appears to be successful where it is being implemented.

Cybercafés

Information about cybercafés is very scattered and difficult to find. Available information is not reliable. It would be of great interest to promote a network or association of cybercafés, to promote interaction among them, and to gather information to develop a strategy to include the cybercafés as important venues to access information and develop skill for ICTs. The development of a strategy or program with the cybercafés is important due to the strong and permanent impact of this type of venues in the daily life of many people, mainly in small towns and poor communities.

Recommendations

- **More public library coverage is needed in non-urban areas:** Most of Colombia's public libraries are located in urban areas and in small towns. The service for rural communities is very limited. Options for increasing coverage include creating libraries in NGO-based telecenters or creating smaller public library branches.
- **Increase training to librarians:** There is insufficient information about the operators of public libraries, especially in non-urban areas. In many cases, they do not have specific training as librarians, and they frequently are the sole staff in the library.
- **Develop more local content:** Generally, there is no local development of contents at public access venues. There have been some limited efforts in this regard in community telecentres, but more work is needed.
- **Tailor services to local populations:** Public access ICT venues need to be more community-oriented by tailoring their activities to local populations.
- **Make better use of telecenters:** Create module-based ICT courses to be offered by cybercafés or telecenters. Cybercafés could offer the courses as a paid service, and courses in cybercafés would help free them of their association with gaming and increase sustainability by attracting more young people, as well as adults searching for information or qualification.
- **Assess impacts of telecenters:** It is important to conduct an assessment of the impact of publicly-funded telecenter programs, to understand the real impact on community development and on users' daily lifestyles.
- **Make better use of government-backed ICT venues:** Given the government's emphasis on IT laboratories in schools, opening up access to these venues during non-school hours would greatly enhance their social benefit. All urban schools in the country are projected to have a broadband equipped laboratory by 2010, and there is an opportunity to dramatically expand ICT access to underserved populations without investing in additional programs.

Geography & Economy

Colombia is one of the world's most geographically diverse countries. Located in the northwest corner of South America, it has both Caribbean and Pacific coastlines. The country also has the Andes mountain range (with altitudes of over 17,000 feet), the Amazon Rainforest, swamplands, and rolling grasslands. Colombia is the third most populated country in Latin America, after Mexico and Brazil. Most of the population is concentrated in the Andean highlands and along the Caribbean coast.

Colombia's geographic and climatic variations have combined to produce relatively well-defined groups in different regions of the country. Each has distinctive characteristics, accents, customs, social patterns, and forms of cultural adaptation to climate and topography that differentiates it from other groups.

Colombia has an extensive natural resource base. Deforestation is a major issue, however. Some of this has been brought about by groups involved in the drug trade. Conflict with armed drug gangs, as well as with guerilla insurgencies and other paramilitary groups, has ravaged the country in recent years and displaced over two million people so far. Displaced people constitute important underserved populations whose needs are not currently being well met by public access venues in the country.

COUNTRY PROFILE	
Total population* (millions)	45.5
Urban population* (millions)	33.3
Literacy (%)	90%
E-readiness	4.41
Gini	0.55

*World Bank 2006 data

ND = No data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés: No organization or network of cybercafés in the country. Access in these establishments is limited by access times and cost. Establishments depend on private interest and do not prioritize community service.

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US gini is around 0.45.

Government Offices for Social Services: Municipal establishments in charge of building bridges between citizens and public information and services, with an important emphasis on services and user needs. Access to these establishments is universal, with no restrictions to any population group.

ICTs: Information and communication technologies (especially computers and the Internet).

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: A "rural" area. Urban vs. non-urban classifications vary by country.

Public libraries: Originally established by national governments, with local governments responsible for sustaining venues and assuring resources for their operation.

Telecenters: At least two types: those promoted by the national program Compartel, and by local government or social organizations. Compartel telecenters emphasize universal ICT access with resources for digital training. Community telecenters emphasize incorporating ICTs into daily life, and broadening community development opportunities.

Front photo: Community Telecentre in La Calera, hosted by a rural women's association. Photo by Yves Beaulieu, © IDRC.



Costa Rica

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Costa Rica is classified by CIS as a “quick win” with regard to improving public access to ICT. The country’s needs are low and readiness is high. A lack of widespread non-urban access as well inadequate local content are two of the key challenges ahead.

Encouraging more local involvement in identifying and filling information needs, as well as more collaboration between key players will help improve the public access situation.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Steady gains
Needs	Low
Needs (rank)	20/25
Readiness	High
Readiness (rank)	6/25

Findings

The central focus of this study aimed at the three principal venues that provide public access to information and ICTs in Costa Rica: public libraries, Centros Comunitarios Inteligentes (CECIs, or telecenters), and cybercafes.

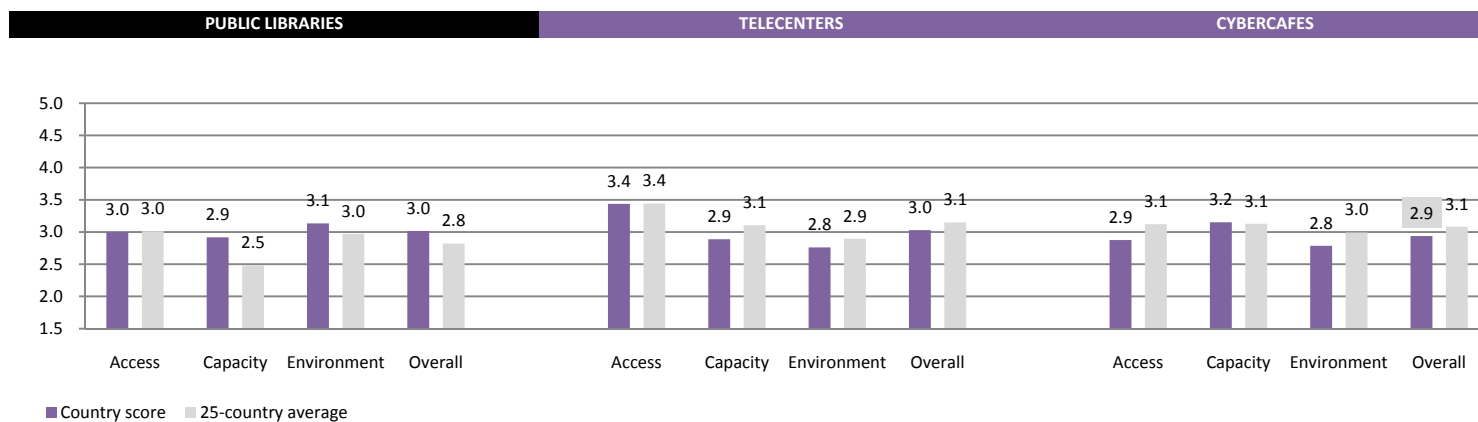
Costa Rican public libraries are organized into a national system that includes 57 libraries located throughout the country and a national library located in the capital city of San José. The library system is a part of the Ministry of Culture (Ministerio de Cultura, Juventud y Deportes), which allocates operating and maintenance funds.

Although the library system is widespread, border towns and other isolated communities rarely have a library. The same is true in indigenous areas where some information access is available through independent organizations, public universities, and non-government organizations (NGOs). Budget allocations for libraries are universally inadequate. Out-of-date collections, the limited availability of ICTs, operating schedules that prevent many potential users from visiting the venues, and other failures are common conditions among public libraries. They have limited relevant local content, limited participation by the communities in decision-making processes, and a student-focused orientation. These factors reduce the importance of libraries as venues for access to information.

CECIs are governed by Costa Rica’s Ministry of Science and Technology (MICIT). Because individual communities administer, maintain, and manage the venues without the support higher government support, CECIs have little chance to survive, and self-sustainability is not included in the program design. CECIs located in public libraries have greater possibilities to be successful. The CECI 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. There are 104 CECIs presently operating nationwide, and the goal for the current administration is to reach a total of 300.

Individual CECI venues are a technological platform typically composed of six to ten computers with Internet

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS*			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	1,162	10,017	5,489	58	1,111	1,062	104	1,273	366	1,000	8,693	3,225	0	398	46
number with ICT	1,162	9,802	5,122	58	349	96	104	1,149	257	1,000	8,507	3,251	0	146	13
% with ICT	100%	98%	87%	100%	31%	20%	100%	90%	100%	100%	98%	100%	NA	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	5%	11%	20%	9%	12%	11%	86%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	4	8	5	76	93	37	42	205	68	4	52	9	NA	419	103
with ICT ('000)	4	15	6	76	2,093	208	42	242	119	4	62	10	NA	1,354	198

NA=Not applicable

See the last page for country-specific definitions of these venues For this country, telecenters include CECIs.

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	11%	28%	ND	35%	11%	26%	ND	24%	11%	26%	15%	24%
	Medium income	33%	54%	ND	46%	33%	56%	ND	45%	55%	56%	85%	45%
	High income	0%	7%	ND	6%	0%	9%	ND	4%	0%	9%	0%	4%
EDUCATION	No formal education	11%	3%	ND	2%	11%	5%	ND	6%	15%	5%	ND	6%
	Only elementary	11%	16%	ND	21%	11%	14%	ND	13%	10%	14%	ND	13%
	Up to high school	22%	50%	ND	36%	22%	37%	ND	32%	45%	37%	ND	32%
	College or university	0%	28%	ND	19%	0%	40%	ND	28%	30%	40%	ND	28%
AGE	14 and under	11%	12%	ND	15%	11%	9%	ND	14%	0%	9%	10%	14%
	15-35	22%	72%	ND	51%	22%	74%	ND	57%	61%	74%	90%	57%
	36-60	11%	12%	ND	23%	11%	12%	ND	8%	5%	12%	10%	8%
	61 and over	0%	2%	ND	2%	0%	0%	ND	1%	0%	0%	5%	1%
GENDER	% female	11%	53%	ND	49%	11%	39%	ND	39%	44%	39%	44%	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

connectivity plus a capacity building program (although none are currently in place). The venues are oriented 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.

Cybercafes are often operated by a family or by a few friends and are easy to find almost anywhere nationwide. Nearly all have high connectivity and reliable electrical service. They are inexpensive small enterprises and are spreading rapidly across the country. Cybercafes are often located in the centers of towns or in commercial areas, but also are found in neighborhoods and near schools and universities. Many cybercafes 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 the community for an Internet connection.

Cybercafe venues have more flexible schedules than libraries or CECIs, and often are open at night. They are a practical alternative when the local users cannot easily afford to have a home connection and do not own a personal computer.

Recommendations

This study revealed that more information is needed across many subject areas, but that people also need to understand how access to information can help them to improve the quality of life. Furthermore, they need to find ways to become involved in empowerment processes and to acquire the ability to identify information needs and the opportunities to fulfill them.

Local content is not being generated under a participative logic where the communities have a voice not only in identifying needs, but also in working to develop good solutions. Social participation is needed to guarantee the quality of information solutions and to create public policies that fulfill the needs of the population. For the most part, the people know what they need, and this must be positioned prominently in any agenda. The establishment of popular participative venues is the first step needed to solve the critical needs of underserved communities and groups.

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 duplicating effort, and avoid diminishing the initiatives that are already in place.

Geography & Economy

Costa Rica sits between Pacific and Caribbean coastal plains that are separated by rugged mountains and more than 100 volcanoes. The country has an enormous natural richness that attracts large numbers of tourists each year and makes the tourist industry a highly profitable revenue stream.

The population is widely diverse, with ethnic origins from African descendants, indigenous groups, migrants, Mestizos, European Caucasians, and others. The official language is Spanish, although a few other languages are spoken among the various ethnic and migratory groups.

While Costa Rica has had an active political history, it has seldom experienced the degree of volatility felt in other countries in this region. The country's economic model is relatively traditional with constitutionally guaranteed universal services for the people.

Gender differences have always been important in Costa Rican culture, and this is particularly visible with regard to employment opportunities and wages.

COUNTRY PROFILE	
Total population* (millions)	44
Urban population* (millions)	27
Literacy (%)	95.8
E-readiness	ND
Gini	0.50

*World Bank 2006 data

ND=No data

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CIS: University of Washington Center for Information & Society (CIS)

Cybercafés: Since Costa Rica is a tourist destination with high connectivity and electricity coverage, cybercafés are present almost everywhere in the country with minimal regulations and no registration records.

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet).

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: A "rural" area. Urban vs. non-urban classifications vary by country.

Public libraries: Organized as part of the National System

Telecenters/CECIs: Operated by the Ministry of Science & Technology (MICIT), administered by communities without ministry support. Consist of 6-10 computers connected to the Internet, plus a capacity building program oriented to diminish the digital divide by reaching underserved populations and students from isolated communities.

Front photo: Public library in Guadalupe. Photo courtesy of Sula Batsu.



Dominican Republic

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

The Dominican Republic has high needs and readiness with regard to public access ICT, and its public access venues perform at about the norm for all countries in this study.

However, the country faces slow gains as it struggles with a range of social pressures, from infrastructure to poverty and migration. Public access ICT challenges include developing better non-urban access, content, and services, more local content, updated facilities, and more networking between libraries.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Slow gains
Needs	Moderate
Needs (rank)	9/25
Readiness	High
Readiness (rank)	8/25

Findings

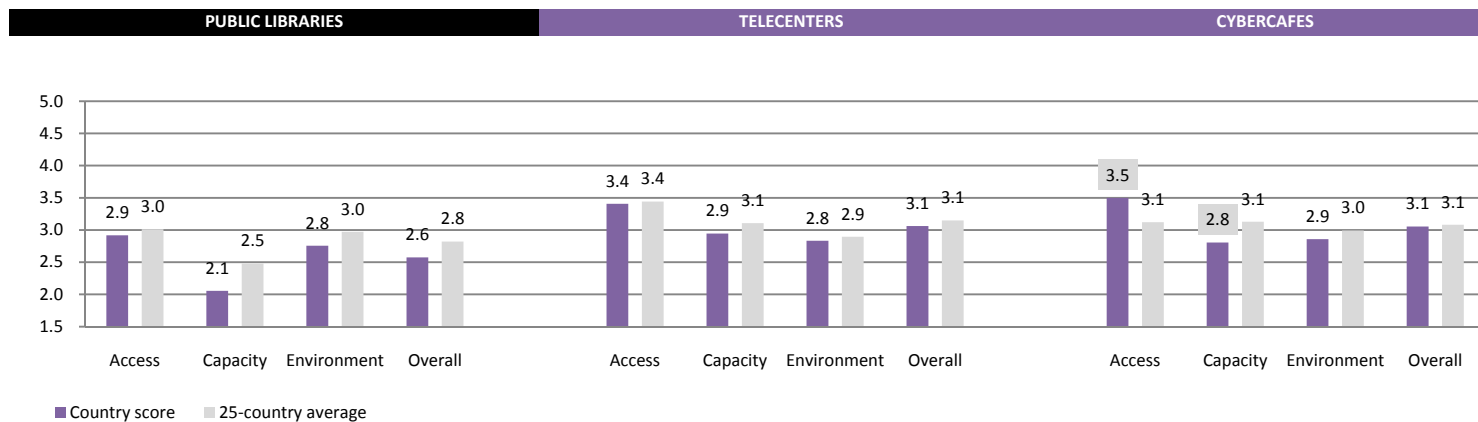
The most important findings with regard to public access ICT gathered by the research team include:

- Information-related resources (including ICTs) are usually more abundant and updated in urban venues than in rural ones.
- An increase in digital literacy and the increase in 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.
- Sustainability and maintenance are important challenges for libraries, telecenters, and Internet centers when the facilities need to be updated 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 focusing 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 workers to Europe and the US.

Other access-related observations include:

- **Education:** The education system promotes digital education activities, which has changed the scope of services needed and offered by public access ICT venues. Telecenters are often used, for instance, to learn computer skills to improve employment opportunities.
- **Age:** Most of the users in this country's public access ICT venues are children, teenagers, and young adults, and as a result, these venues target younger users and focus much less on older adults—especially elderly people. This targeting is apparent in the venue infrastructure and content.
- **Location:** Location inequities were notable, with venues heavily concentrated in urban communities. Not only are there more urban

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	1,420	10,017	5,489	300	1,111	1,062	864	1,273	366	256	8,693	3,225	0	398	46
number with ICT	ND	9,802	5,122	ND	349	96	ND	1,149	257	ND	8,507	3,251	0	146	13
% with ICT	ND	98%	87%	ND	31%	20%	ND	90%	100%	ND	98%	100%	NA	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	21%	11%	20%	61%	12%	11%	18%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	7	8	5	32	93	37	11	205	68	38	52	9	NA	419	103
with ICT ('000)	ND	15	6	ND	2,093	208	ND	242	119	ND	62	10	NA	1,354	198

ND=No data
 NA=Not applicable
 See the last page for country-specific definitions of these venues
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	28%	28%	25%	35%	29%	26%	51%	24%	21%	26%	14%	24%
	Medium income	11%	54%	3%	46%	29%	56%	31%	45%	37%	56%	30%	45%
	High income	0%	7%	0%	6%	8%	9%	0%	4%	0%	9%	0%	4%
EDUCATION	No formal education	1%	3%	0%	2%	3%	5%	0%	6%	0%	5%	0%	6%
	Only elementary	24%	16%	8%	21%	17%	14%	57%	13%	5%	14%	5%	13%
	Up to high school	11%	50%	20%	36%	42%	37%	28%	32%	39%	37%	64%	32%
	College or university	28%	28%	6%	19%	12%	40%	15%	28%	22%	40%	31%	28%
AGE	14 and under	28%	12%	14%	15%	23%	9%	66%	14%	7%	9%	5%	14%
	15-35	38%	72%	17%	51%	49%	74%	43%	57%	45%	74%	45%	57%
	36-60	2%	12%	0%	23%	2%	12%	6%	8%	6%	12%	6%	8%
	61 and over	0%	2%	0%	2%	0%	0%	0%	1%	0%	0%	0%	1%
GENDER	% female	43%	53%	10%	49%	55%	39%	59%	39%	38%	39%	22%	39%

Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

venues, they commonly feature better infrastructure, technologies, and services. The venues visited were in different types of zones and various economic conditions, and it was clear that socio-economic status directly affects equitable access to information and ICTs.

- **Gender:** While gender inequity exists nationwide, women are well-represented in the country's libraries and telecenters but less well in cybercafés. There are no conclusive data to explain this imbalance, but a contributing factor might be that women constitute a high percentage of the people in the formal education system, and libraries aim much of their content toward education.
- **Ethnicity:** Ethnicity was included in this study because of the strong presence of Haitian immigrants in the Dominican Republic. None of the venues studied offered content or services adapted culturally for Haitians.

Recommendations

The following success factors and recommendations emerged from this study:

- National and local governments need to redirect resources to small public libraries, and libraries need to update 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 web site that fosters collective creation and sharing among them. To accomplish this, 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 is needed to diversify the roles that telecenters play within each community, strengthen the integration of the community with the telecenters, promote the venue identity, and support them 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 also explore strategic uses of ICT applications, especially the Web 2.0 tools that Dominicans are so fond of and allow for new learning methodologies that integrate social appreciation and collaboration. Finally, Indotel should 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 to be effective, it would require that librarians and administrators become more open and accepting of their new role, and focus on the issue of why adults do not frequent the libraries. This is especially important for smaller libraries and the educational role they have achieved in the communities.

Geography & Economy

The Dominican Republic is a small country in the Antilles Archipelago with a population of approximately 9.6 million. About a third are under the age of 15, which is somewhat typical for this region.

Together with Haiti, the Republic forms the island that was christened “La Española” by Columbus in 1492; it 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.

Like the United States, the Dominican Republic is a presidential representative democracy with executive, judicial, and legislative branches

Nearly half of the country’s population lives in poverty, which combined with the average age of the population produces a climate which fosters social ills such as homelessness, child labor exploitation, and school desertion. The country’s unemployment rate in 2007 stood at 15.6 percent.

COUNTRY PROFILE	
Total population* (millions)	9.6
Urban population* (millions)	6.5
Literacy (%)	87
E-readiness	ND
Gini	0.52

*World Bank 2006 data
ND=No data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafés. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. “Access” includes variables such as accessibility, suitability, affordability, and the availability of technology; “capacity” includes training, relevant content and services, social appropriation, and collaboration capacity; and “environment” includes socio-cultural factors, popular support, political will, and a country’s legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country’s public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés: Distribution based upon connectivity, but mostly located in urban areas and their outskirts; also in highly populated towns in the countryside.

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet).

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See “Information Needs & Watering Holes” on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country.

Public libraries: Most public libraries are designed to help the public educational system, usually elementary and high schools; no national library system that provides book exchanges, and books are not allowed out of libraries.

Telecenters: Three main types: Institute of Telecommunications (Indotel), called *Training Centers on Informatics* (CCI); *Virtual Classrooms of the State Secretary on Education* (AVEs); and *Community Technological Centers* (CTC) located in rural areas.

Front photo: Municipal library of Santo Domingo. Photo courtesy of Sula Batsu.



Ecuador

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Ecuador has a mixed record with regard to public access to ICT. Its library system is somewhat average compared to the other countries in this study, while its telecenters are among the best and cybercafés among the worst. Ecuador has a low readiness ranking (political and economic will), which combined with other challenges such as poor non-urban access and a lack of appropriate content make the public access landscape challenging. Since there are both highs and lows, CIS classifies Ecuador’s potential for ICT improvement as “steady gains.”

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Steady gains
Needs	Moderate
Needs (rank)	10/25
Readiness	Low
Readiness (rank)	20/25

Findings

Public libraries in Ecuador depend on SINAB (the National Library System), a decentralized Education Department office. There are 557 libraries distributed over the country and these are especially important in rural zones and underserved urban neighborhoods. In general, however:

- Library services are oriented toward students, and only rarely offer services or content appropriate for the general population.
- Public libraries collectively lack professional staff, ICT services, and adequate budgets, and only 11 libraries offer ICTs to the public.
- The population at large seldom accesses libraries because they do not find information or services to meet their needs.

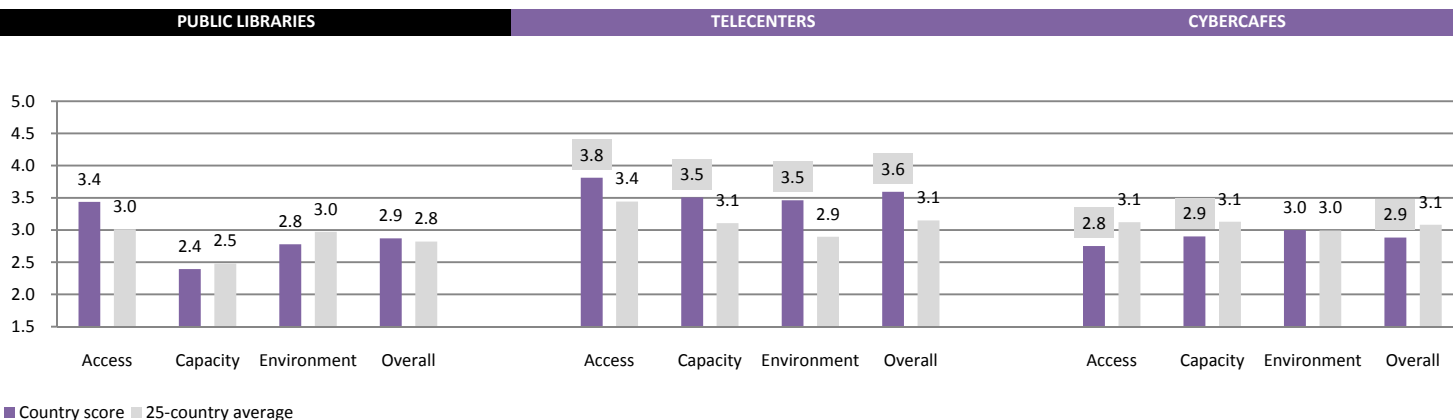
Across all public access ICT venues in Ecuador, the following were among the more important findings that emerged from this study:

- There is insufficient appropriate content for underserved communities that have a high concentration of low education levels, illiteracy, and people who do not speak Spanish.
- High Internet connection costs are a barrier to wide sectors of the population increasing who could use access to the Internet.
- Cybercafés are the main venue to provide access to information and communication, but they are concentrated in urban areas.

Success factors that will improve access to information and communication for underserved groups include specific policies and actions related to capacity building and appropriate content development. Information should be adapted, translated, organized and disseminated in appropriate ways to meet the information needs of the public. Capacity building projects should focus on purpose-oriented training, links among groups with common interests, and strong levels of commitment among the trainers.

The Ecuadorian economy depends heavily on petroleum-based revenues and to a lesser degree on agriculture and mineral deposit mining. The government investments that

ACE Scores



■ Country score ■ 25-country average

Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	1,994	10,017	5,489	557	1,111	1,062	45	1,273	366	1,392	8,693	3,225	0	398	46
number with ICT	ND	9,802	5,122	22	349	96	45	1,149	257	ND	8,507	3,251	0	146	13
% with ICT	ND	98%	87%	4%	31%	20%	100%	90%	100%	ND	98%	100%	NA	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	28%	11%	20%	2%	12%	11%	70%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	7	8	5	24	93	37	293	205	68	9	52	9	NA	419	103
with ICT ('000)	ND	15	6	592	2,093	208	293	242	119	ND	62	10	NA	1,354	198

ND=No data

NA=Not applicable

See the last page for country-specific definitions of these venues

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	36%	28%	33%	35%	69%	26%	73%	24%	23%	26%	63%	24%
	Medium income	57%	54%	67%	46%	31%	56%	27%	45%	62%	56%	29%	45%
	High income	7%	7%	0%	6%	0%	9%	0%	4%	15%	9%	7%	4%
EDUCATION	No formal education	0%	3%	0%	2%	2%	5%	7%	6%	0%	5%	0%	6%
	Only elementary	19%	16%	19%	21%	23%	14%	66%	13%	7%	14%	1%	13%
	Up to high school	67%	50%	73%	36%	57%	37%	17%	32%	28%	37%	33%	32%
	College or university	14%	28%	8%	19%	18%	40%	10%	28%	17%	40%	18%	28%
AGE	14 and under	11%	12%	0%	15%	13%	9%	50%	14%	3%	9%	36%	14%
	15-35	79%	72%	83%	51%	87%	74%	17%	57%	84%	74%	57%	57%
	36-60	7%	12%	17%	23%	0%	12%	33%	8%	7%	12%	7%	8%
	61 and over	3%	2%	0%	2%	0%	0%	0%	1%	3%	0%	0%	1%
GENDER	% female	58%	53%	50%	49%	40%	39%	50%	39%	41%	39%	64%	39%

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

apply to the access to information have largely been orientated toward the education sector. In 2006, the allocation for education was of nine percent (US\$923.2 million) of the central government budget, and in 2007, that figure increased to 11 percent (US\$1,190.8 million). This increase produced a significant investment in the education infrastructure that, in terms of information access, has been oriented primarily to providing connectivity and content platform development.

The intensive growth of the telecommunications sector and the renegotiation of contracts with service providers, guarantees an increase in the next several years in the collection of revenues for the FODETEL funds. The application of these increased funds may increase the incentive to deliver ICT access to underserved sectors and promote the creation of e- education, e-health, and e-government content and stimulate local economic development.

Ongoing government policy revisions that address access to information show that the use of new ICTs has turned into an expanding paradigm reinforced by the public's growing perception of the value of ICTs. As a result, several new big investment projects related to access to information have a strong technological component; however, there is no corresponding effort to invest funds and support to enlarge coverage of library services.

The high value placed on the technological component of these new projects is the reason why many development projects aimed at access to information have placed little emphasis on capacity building and content development in favor of prioritizing connectivity. Still, the level of connectivity remains low for most of the population. A moderate level of investment is directed toward new projects focused on education, health, e-government, and the effort to create platforms for local content.

Recommendations

There are huge information needs that are not adequately met by public libraries, cybercafés, and telecenters. Among the more outstanding content deficiencies are:

- Migration procedures, remittance alternative systems, visa and travel information)
- Small business and job opportunities
- Community development opportunities
- Accessible, understandable, opportune, and precise information on health issues; and
- Agricultural market prices, planting and harvesting information, weather forecasts, business opportunities, and technical issues.

A few other sources provide some local or thematic agricultural information systems and services from NGOs.

The following recommendation emerged from the study:

- Develop information systems specifically for underserved groups.
- Develop ICT-based capacity building programs that can also apply specifically to special groups including women, illiterates, people who do not speak Spanish, and older people.
- Provide governmental funds to encourage the private sector to establish telecenters in rural and underserved areas and provide content that meets the local needs.
- Reorient and provide greater support to the public libraries to ensure they meet the needs of the general population and become more than school libraries.
- Create and expand programs that improve rural access to the Internet and establish policies to reduce Internet connection costs.

Geography & Economy

Ecuador is a small and sparsely populated country in northwestern South America with an ethnically diverse population estimated to be 13.8 million. Mestizos are the largest ethnic group (65 percent of the population) and are the mixed descendants of Spanish colonists and indigenous Indians. Amerindians comprise about 25 percent of the population. Spanish is the official language and is the first language of 94.4 percent of Ecuadorians.

The public education system is free, and attendance is mandatory until age 14. In rural areas, however, only 10 percent of the children go on to high school. Government statistics show the mean number of years completed is only 6.7.

The country's geography is also diverse, and includes coastal plains, dense Amazon rainforest, and rugged highlands in the Andes Mountains. The Galapagos Islands in the Pacific also are 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.

Ecuador is a presidential republic with an executive branch that includes 25 ministries.

COUNTRY PROFILE	
Total population* (millions)	13.2
Urban population* (millions)	8.3
Literacy (%)	91
E-readiness	4.12
Gini	0.44

*World Bank 2006 data

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Cybercafés: Offer connectivity only, do not develop content or offer ICT training.

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Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country.

Public libraries: Dependent upon SINAB (National Library System), a decentralized office of the Education Department; services oriented to students and do not offer services or content appropriate to the general population.

Telecenters: Developmentally-oriented venues that provide public access Internet points, which are promoted by different organizations such as community-based organizations, NGOs, and local governments.

Front photo: Internet access via a rooftop satellite connection in rural Ecuador. Photo courtesy of Matthew Kebbekus.



Egypt

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Egypt has relatively low needs with regard to improving public access to information and communication technologies, and is expected to make steady gains toward this goal over the coming years. Some of the factors influencing this progress include a public accustomed to accessing information through alternate means (such as mobile phones), high illiteracy rates, a lack of relevant content, and a high gender bias in non-urban areas of the country.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Steady gains
Needs	Low
Needs (rank)	18/25
Readiness	Low
Readiness (rank)	17/25

Findings

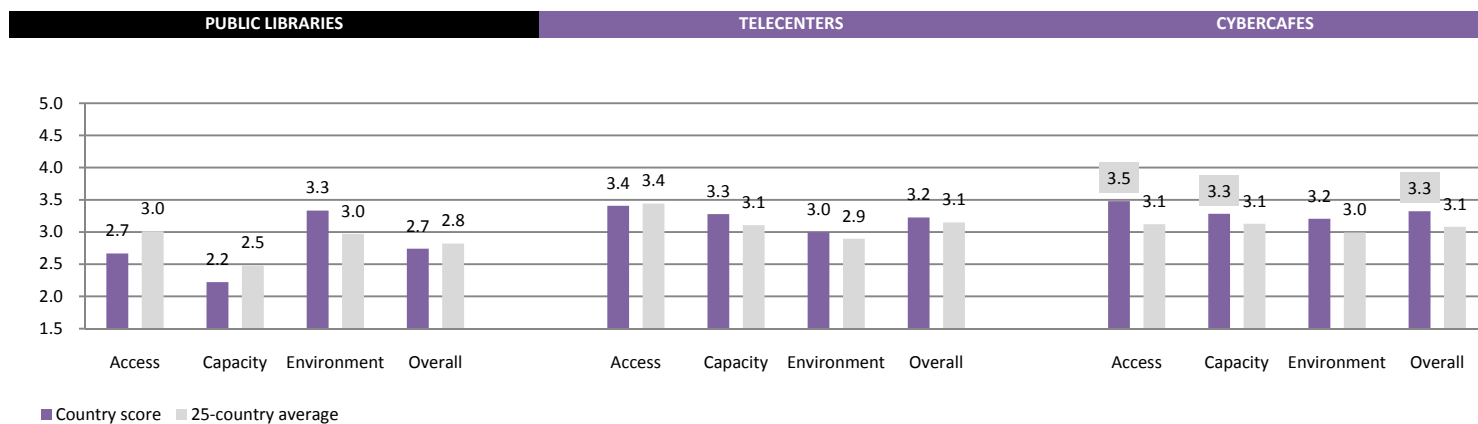
During the decade prior to this study, Egypt's government invested heavily in creating a physical infrastructure that encourages economic growth and invites foreign direct investment. In that respect, the government correspondingly has invested heavily in information and technological developments and 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 during this study: public libraries, academic libraries, IT clubs, and cybercafés. These four venues cover the spectrum of public access in Egypt and are perceived to have the potential to expand and more effectively meet the information needs of the public.

The Egyptian political sector has demonstrated a high degree of support for public access venues, and that support serves as a favorable foundation for the success of these 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 new venues that have appeared to serve the public. The diversity of supporting agencies affects the wide range of offerings and quality of services.

- Despite this strong support from the government for public access to technology-based information and communication venues, a vast majority of the population still 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 who live 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 decreasing the role these shops play.

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	13,752	10,017	5,489	1,127	1,111	1,062	1,742	1,273	366	10,194	8,693	3,225	689	398	46
number with ICT	12,368	9,802	5,122	225	349	96	1,742	1,149	257	10,194	8,507	3,251	207	146	13
% with ICT	90%	98%	87%	20%	31%	20%	100%	90%	100%	100%	98%	100%	30%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	8%	11%	20%	13%	12%	11%	74%	73%	67%	5%	4%	1%
POP. PER VENUE ('000)	5	8	5	66	93	37	43	205	68	7	52	9	108	419	103
with ICT ('000)	6	15	6	329	2,093	208	43	242	119	7	62	10	359	1,354	198

*See the last page for country-specific definitions of these venues. For this country, "other venues" refers to academic libraries.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	50%	28%	30%	35%	0%	26%	10%	24%	8%	26%	7%	24%
	Medium income	40%	54%	55%	46%	80%	56%	70%	45%	44%	56%	63%	45%
	High income	10%	7%	15%	6%	20%	9%	20%	4%	48%	9%	30%	4%
EDUCATION	No formal education	0%	3%	0%	2%	1%	5%	1%	6%	0%	5%	0%	6%
	Only elementary	80%	16%	10%	21%	7%	14%	19%	13%	7%	14%	42%	13%
	Up to high school	10%	50%	60%	36%	35%	37%	20%	32%	23%	37%	21%	32%
	College or university	10%	28%	30%	19%	57%	40%	60%	28%	70%	40%	37%	28%
AGE	14 and under	35%	12%	10%	15%	2%	9%	15%	14%	15%	9%	15%	14%
	15-35	60%	72%	85%	51%	88%	74%	45%	57%	65%	74%	85%	57%
	36-60	5%	12%	30%	23%	9%	12%	35%	8%	20%	12%	0%	8%
	61 and over	0%	2%	5%	2%	1%	0%	5%	1%	0%	0%	0%	1%
GENDER	% female	55%	53%	45%	49%	45%	39%	20%	39%	20%	39%	10%	39%

Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

- The lack of appropriate sustainability models also has 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 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.
- Content that is relevant, user-generated, and particularly focused on local needs is quite limited, which contributes to the inadequate adoption of ICTs 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 to a significant degree in underserved, low-income, and rural areas.
- What are commonly considered to be the two most important factors affecting access to public information venues are the educational level and gender of the 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 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.

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, aids the development of infrastructure, and contributes 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 knowledge sharing among the 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 to 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 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 digital content in libraries and online**, and develop ways to share and integrate basic library activities with new technologies at public access venues. When this is accomplished, it will increase the relevance of and accessibility to libraries.

Geography & Economy

Egypt is renowned for having developed a complex graphics-based communication system thousands of years ago. Today, Egypt is a modern technologically advanced nation with a strong stable political and economic base and fits well among the neighboring countries both in Africa and throughout the Middle East.

The rapidly growing population has been estimated at 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 now, and they continue to cause a high degree of stress on the people and on the country's resources.

COUNTRY PROFILE	
Total population* (millions)	74.1
Urban population* (millions)	31.9
Literacy (%)	56
E-readiness	4.26
Gini coefficient	0.34

*World Bank 2006 data
NA=not available

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafés. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés: For-profit venues that provide communities with access to ICTs.

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet).

IT Clubs: Not-for-profit venues backed by the Ministry of Communication and Information Technology (MCIT). A telecenter model that aims to provide citizens with access to digital ICTs, and provide ICT as a tool for development.

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country.

Public libraries: Generally accessible and affordable to all citizens; mostly administered through local governments with little ICT access.

Specialized and Academic libraries: Public libraries that serve a specific audience in a particular area of interest; university and research students are the most common users.

Telecenters: See IT Clubs.

Front photo: Internet users at the Library of Alexandria. Photo courtesy of Emily Kornblut.



Georgia

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Georgia lags behind the rest of Europe in improving public access to ICT. An aging and war-torn telecommunications infrastructure has left rural areas with low and unreliable levels of Internet connectivity, and a challenging geographic environment makes access difficult even when it's available. While literacy is very high in this country, rural populations and ethnic minorities lack computer skills. Overall, however, Georgia's ICT-related needs are only moderate compared with other countries in this study.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Slow gains
Needs	Moderate
Needs (rank)	13/25
Readiness	Moderate
Readiness (rank)	13/25

Findings

In general, Georgia has not kept pace with the rest of the world in developing better access to information. This is particularly true compared to the rest of Europe. One of the reasons is that the country's telecommunication network relies heavily on landline access, which makes it unavailable in many remote regions because the infrastructure has degraded over the years and has not been repaired following the military conflicts of recent years.

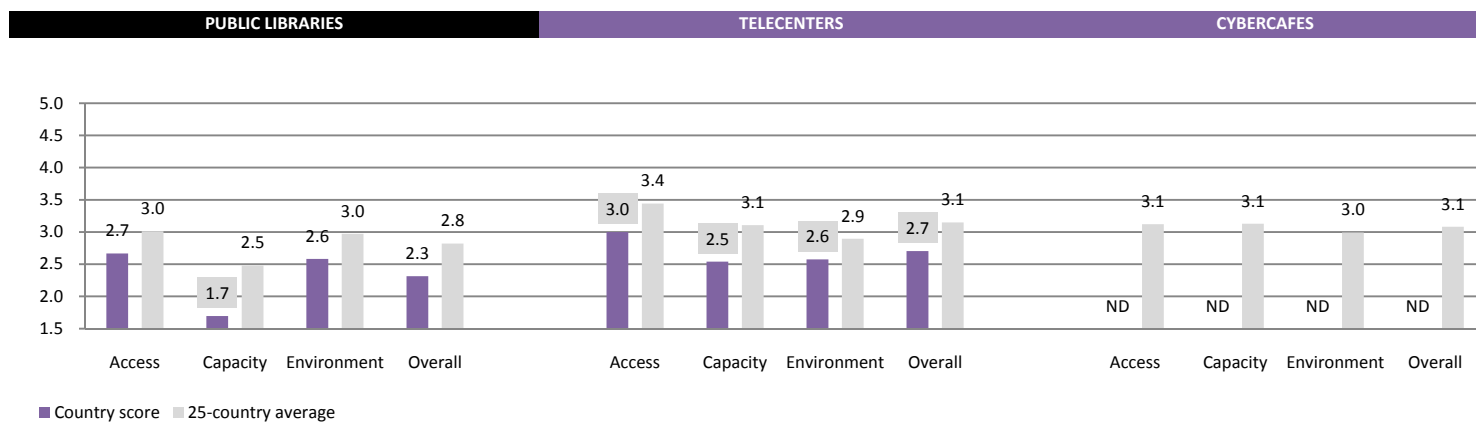
Georgia has 1396 public libraries. Of these, 1218 are located in rural settlements. Still, people in larger communities have better access than those in smaller communities. The limited access in rural areas is often a direct result of the geography, and people living in high mountainous regions and other remote sites are the most underserved groups. Venue location and lack of content in local languages produces inequities for ethnic minorities in particular.

In terms of size and type, public libraries in Georgia can be divided into two groups: (1) central public libraries serving the districts located in urban areas, and (2) smaller libraries 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, and there are about 123 more libraries that are similar in size to central libraries. These are located in various cities.

The government is working to improve and expand the public library system, but as the program evolved it appeared that the net result would be a reduction in the total number of libraries. The government plan suggested that several small neighboring libraries might be combined to form larger facilities.

Internet cafes are located in many communities and the research team was unable to locate definitive estimates of the total number of these small public venues. Most are located in urban areas. A recent settlement infrastructure survey showed that out of a proportionally selected group of 52 small cities, 35 have at least one Internet cafe. The survey also showed that of the 667 surveyed villages, only four appeared to have Internet cafes; however, each of the largest cities, without exception, has several Internet cafes.

ACE Scores



ND=No data
 Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	1,397	10,017	5,489	1,396	1,111	1,062	ND	1,273	366	ND	8,693	3,225	1	398	46
number with ICT	280	9,802	5,122	279	349	96	ND	1,149	257	ND	8,507	3,251	1	146	13
% with ICT	20%	98%	87%	20%	31%	20%	ND	90%	100%	ND	98%	100%	100%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	100%	11%	20%	ND	12%	11%	ND	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	3	8	5	3	93	37	ND	205	68	ND	52	9	4,430	419	103
with ICT ('000)	16	15	6	16	2,093	208	ND	242	119	ND	62	10	4,430	1,354	198

ND=No data
 *See the last page for country-specific definitions of these venues. For this country, "other venues" refers to the National Library.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	66%	28%	74%	35%	ND	26%	ND	24%	40%	26%	69%	24%
	Medium income	28%	54%	21%	46%	ND	56%	ND	45%	35%	56%	22%	45%
	High income	0%	7%	1%	6%	ND	9%	ND	4%	2%	9%	2%	4%
EDUCATION	No formal education	1%	3%	2%	2%	ND	5%	ND	6%	0%	5%	1%	6%
	Only elementary	12%	16%	27%	21%	ND	14%	ND	13%	30%	14%	8%	13%
	Up to high school	27%	50%	40%	36%	ND	37%	ND	32%	37%	37%	30%	32%
	College or university	60%	28%	31%	19%	ND	40%	ND	28%	33%	40%	61%	28%
AGE	14 and under	9%	12%	21%	15%	ND	9%	ND	14%	16%	9%	12%	14%
	15-35	47%	72%	39%	51%	ND	74%	ND	57%	70%	74%	52%	57%
	36-60	31%	12%	37%	23%	ND	12%	ND	8%	13%	12%	35%	8%
	61 and over	13%	2%	3%	2%	ND	0%	ND	1%	1%	0%	1%	1%
GENDER	% female	78%	53%	68%	49%	ND	39%	55%	39%	29%	39%	ND	39%

ND=No data
 Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

The fees at Internet cafes are often too high for most people, especially among the lowest levels of the economic scale, but Internet cafes are perceived to be an important source of the most current information and content produced in foreign countries.

Recommendations

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 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 remains below the technological levels achieved by most other European countries.

The study results provided a detailed analysis of key public access venues in Georgia, the strengths, weaknesses, and opportunities in these venues, and the information needs of the population, with a focus on underserved groups. A subsequent national representative survey would serve to validate the findings of this research and provide more precise quantitative results on project issues. Such a survey is highly recommended.

The introduction of ICTs in all libraries would be a good investment, would increase the public's access to information, and would improve the quality of life. In addition, the advantages of access to ICTs would be especially helpful to people in underserved communities and rural areas. The rural population, 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 appropriate 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 addressed:

- Renovate and provide consistent ongoing support at all levels to public libraries. Equip all public libraries with ICT-based technological services and infrastructure.
- Create relevant content in the languages appropriate to the individual libraries, especially in the underserved communities.
- 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 practical and useful legislative basis for ICTs that will encourage ongoing technological development. Improve the legislative basis for the public library operational functions.
- Provide high-speed Internet connectivity nationwide.
- Provide capacity building programs and training on information gathering techniques for venue operators.

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 and 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.

Geography & Economy

Georgia sits between Western Asia and Eastern Europe, bounded to the west by the Black Sea, the north by Russia, Turkey and Armenia to the south, and Azerbaijan to the east. Its population of 4.7 million is comprised largely of ethnic Georgians (about 84%). Georgian is the country's official language—spoken by 71% of the population—while 9% speak Russian, 7% Armenian, 6% Azeri, and 7% other languages. Georgia's literacy rate is claimed to be close to 100 percent.

Georgia became part of the Russian Empire at the start of the 19th century. After a brief period of independence following the Russian Revolution of 1917, independence was restored during the Rose Revolution of 1991. In August 2008, Georgia engaged in an armed conflict with Russia and separatist groups from South Ossetia and Abkhazia after which Russia recognized these regions as independent states.

Mountains and forests are the dominant geographic features of Georgia. The country's northern border with Russia roughly runs along the crest of the Greater Caucasus mountain range and forests cover around 40% of the country. The landscape is quite varied, however, ranging from lowland swamps to rain forests to semi-arid plains.

COUNTRY PROFILE	
Total population* (millions)	4.4
Urban population* (millions)	2.3
Literacy (%)	99
E-readiness	ND
Gini coefficient	0.40

*World Bank 2006 data
ND=No data

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Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés/Internet cafes: Privately owned and not organized into any kind of network

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

National Library: The most important free venue, providing information access to thousands of people in the capital city of T'bilisi

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Most public libraries are organized into one institutional structure

Front photo: During the recent conflict between Russia and Georgia, musicians from both countries—aided by an Internet "bridge"—performed on the popular show "National Interest" on Russia's largest national TV channel. Photo courtesy of Alexander Minza.



Honduras

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Honduras has very high needs with regard to improving public access to ICT, and low overall readiness. CIS has concluded, however, that steady gains are possible over the coming years. Developing more capacity-building programs will be a key element of this effort. Many other issues will need to be addressed as well such as high rates of poverty, unemployment, illiteracy, emigration, and health crises.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Steady gains
Needs	High
Needs (rank)	4/25
Readiness	Low
Readiness (rank)	21/25

Findings

Income is probably the most important characteristic defining public access to ICT in Honduras. People in the lower income classes can only rarely afford user fees and often cannot afford to travel to a venue. Their need to maintain their daily subsistence is of the utmost importance even if a venue is nearby. By comparison, most cybercafé users are middle class and have a certain amount of disposable income that permits them greater access to venues.

Age is also a factor. Persons under 35 years of age form the vast majority of those who use these venues. Among the users interviewed, the majority used the venue services more for communication than for information searches.

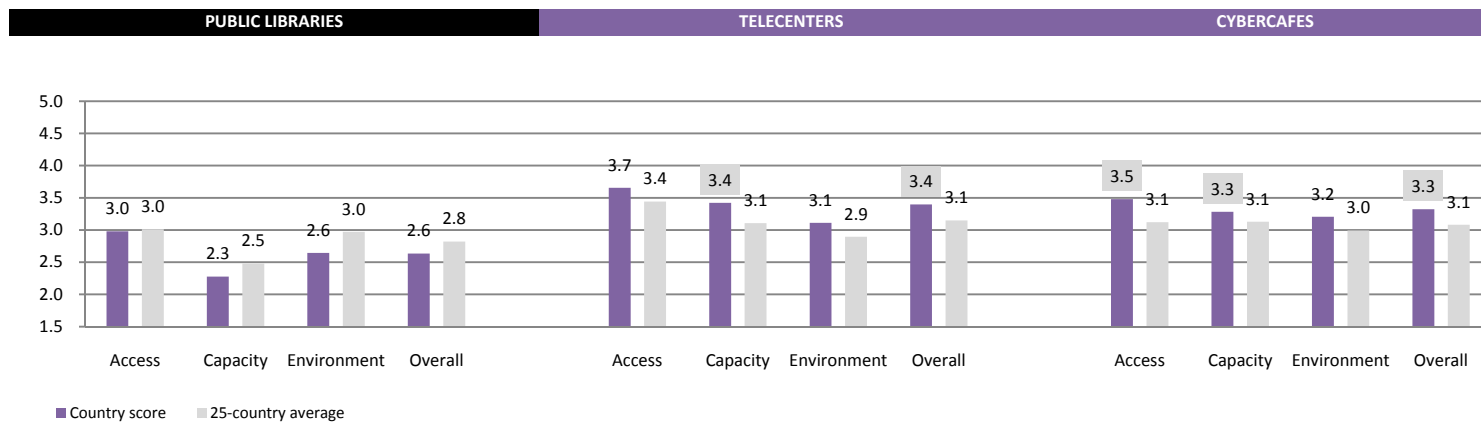
Education levels are equally important among users, and students form a high percentage of the users. Searches for information are a high priority among younger people who use the venues for their schoolwork and also to learn about job opportunities.

Although gender inequity is a long-standing cultural issue nationwide, 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, and 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 more developed in rural areas. The perception was that the initiatives were a greater need in rural areas where there were so few existing venues and 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 on foreign job opportunities as well as information guides on the topic of migration.

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	302	10,017	5,489	128	1,111	1,062	122	1,273	366	ND	8,693	3,225	52	398	46
number with ICT	ND	9,802	5,122	67	349	96	ND	1,149	257	ND	8,507	3,251	52	146	13
% with ICT	ND	98%	87%	52%	31%	20%	ND	90%	100%	ND	98%	100%	100%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	42%	11%	20%	40%	12%	11%	ND	73%	67%	17%	4%	1%
POP. PER VENUE ('000)	23	8	5	54	93	37	57	205	68	ND	52	9	134	419	103
with ICT ('000)	ND	15	6	105	2,093	208	ND	242	119	ND	62	10	134	1,354	198

ND=No data

*See the last page for country-specific definitions of these venues. For this country, "other venues" refers to Riecken Foundation Libraries.

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	18%	28%	ND	35%	ND	26%	23%	24%	14%	26%	ND	24%
	Medium income	59%	54%	ND	46%	ND	56%	70%	45%	81%	56%	ND	45%
	High income	23%	7%	ND	6%	ND	9%	0%	4%	0%	9%	ND	4%
EDUCATION	No formal education	18%	3%	ND	2%	ND	5%	0%	6%	1%	5%	0%	6%
	Only elementary	36%	16%	ND	21%	ND	14%	10%	13%	12%	14%	12%	13%
	Up to high school	45%	50%	ND	36%	ND	37%	67%	32%	46%	37%	41%	32%
	College or university	0%	28%	ND	19%	ND	40%	20%	28%	41%	40%	47%	28%
AGE	14 and under	64%	12%	ND	15%	ND	9%	3%	14%	5%	9%	ND	14%
	15-35	32%	72%	ND	51%	ND	74%	97%	57%	81%	74%	ND	57%
	36-60	4%	12%	ND	23%	ND	12%	0%	8%	14%	12%	ND	8%
	61 and over	0%	2%	ND	2%	ND	0%	0%	1%	0%	0%	ND	1%
GENDER	% female	55%	53%	ND	49%	ND	39%	40%	39%	33%	39%	ND	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

The following findings emerged from this study:

- Few policies and initiatives are in effect in Honduras that support public access to information, and the few initiatives that are in place have limited support from the government.
- Information and communication access venues are affected by the political preferences of the users, venue operators, and community administrators.
- Children and young people are the most frequent users because of curriculum requirements imposed by schools.
- Cybercafés now serve as more popular information and communication access centers than telecenters, which were originally created to service these public access needs. Cybercafés also serve an important social role as training sites and social gathering places.
- Access to venues is often determined by a user's perception of a venue's social attractiveness, which motivates people and makes the existing venues more inviting.
- The decision as to what is legitimate information is determined mainly by venue operators and is based on the subjective opinions held by each operator.
- Because of the migration phenomenon, people often go to the venues to communicate with relatives abroad.

Recommendations

This study generated important expectations among the people in Honduras who were involved. 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 following key recommendations emerged:

- Establish a functional collaboration among the venues to aid resource sharing and to create improved information processes
- Implement a participatory process where people define the needs of the community and prioritize them
- Establish capacity-building programs, especially among underserved communities and groups
- Drive municipalities and local governments to play a fundamental role in integrating and defining venues
- Develop an initiative to link the work of the state public libraries with the CCCCs to connect the work of both, and
- Distribute and promote the use of Web 2.0 tools to generate local content.

Geography & Economy

Honduras is a small semi-tropical country in Central America with a modest economy based largely on agriculture. Approximately 92 percent of the population is Mestizo (defined as a mixed ethnicity of European and indigenous origins). Spanish is the official language, but five indigenous languages also are spoken.

Honduras has high levels of poverty, unemployment and illiteracy. Migration is also an issue: Each year, approximately 100,000 Hondurans leave the country, most to the United States or Spain.

In addition, Hondurans faces an ongoing struggle with HIV-AIDS and reproductive health, and has one of the highest levels of HIV-AIDS cases in the region.

The Honduran government implemented its Poverty Reduction Strategy in 2001, which has the support of the United Nations Development Program (UNDP). The poverty rate in rural areas of Honduras (which holds 53% of the population) is estimated to be 85 percent.

COUNTRY PROFILE	
Total population* (millions)	7.0
Urban population* (millions)	3.3
Literacy (%)	80
E-readiness	ND
Gini coefficient	0.54

*World Bank 2006 data
ND=No data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafes, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés/Internet cafes: Privately owned and not organized into any kind of network

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Most public libraries are organized into one institutional structure

Front photo: Riecken Library in Jacaleapa. Photo courtesy of Sula Batsu.



Indonesia

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Indonesia has low needs and readiness, but can probably achieve rapid improvement in the state of its public access to ICT because there is strong political will in the country for creating and supporting a stronger information society. The geography of Indonesia is particularly problematic, however with its vast population spread out over thousands of islands. Cultural barriers also exist—gender barriers, and a perception among underserved populations that computers are for the elite.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Quick wins
Needs	Low
Needs (rank)	19/25
Readiness	Low
Readiness (rank)	19/25

Findings

Indonesia’s 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 using computers at Internet cafés, and improving economic conditions allowed more people to afford personal computers.

After 2000, the government began to prioritize 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 public information via ICTs.

By 2008, the use of ICTs was extremely popular, and increasing numbers of people sought access to the Internet. This 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.

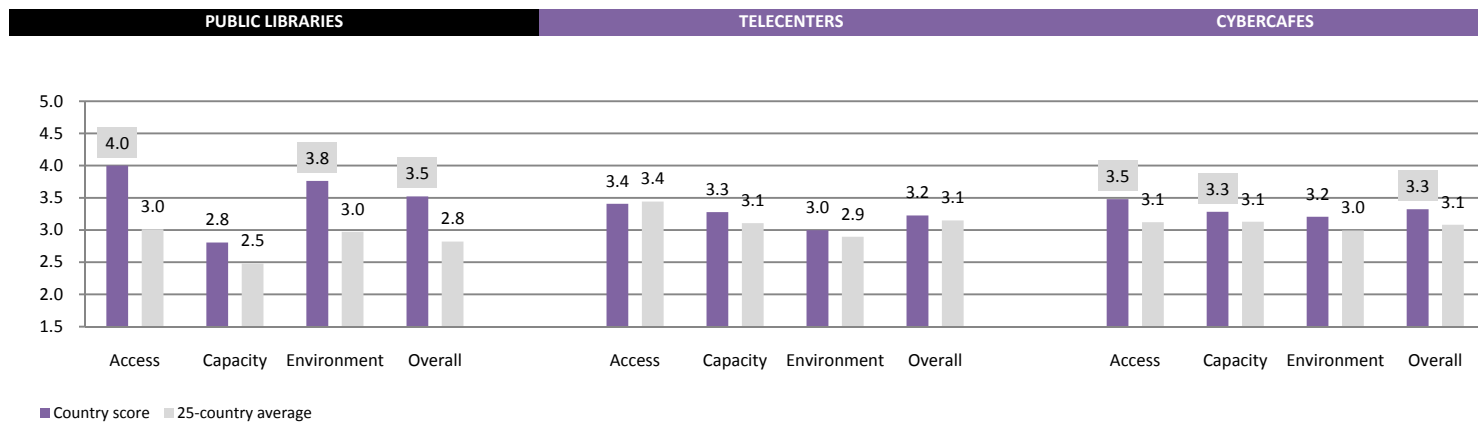
This study focused on Indonesia’s public libraries, Warmasifs (information society cafés), and Warinteks (technological service cafés). Indonesia has 1062 public libraries, 63 Warmasif, and 84 Warintek.

Warmasifs decrease the digital divide by accelerating access to information for Indonesian society and especially for underserved communities, although they still charge for user access. 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. Warmasifs are generally not used by underprivileged communities due to their lack of awareness of the benefits of ICT usage and their perception that computers are for people of higher social status.

Warinteks empower documentation sources, information sites, and libraries, and are funded by the Department of Research and Technology. Most Warintek venues are located in local public libraries, higher education libraries, government documentation units, and NGOs. Warinteks are free or charge minimally for ICT usage.

Indonesia has three types of public libraries: traditional libraries in small towns and villages without ICTs, semi-

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	6,209	10,017	5,489	1,062	1,111	1,062	147	1,273	366	5,000	8,693	3,225	0	398	46
number with ICT	5,168	9,802	5,122	21	349	96	147	1,149	257	5,000	8,507	3,251	0	146	13
% with ICT	83%	98%	87%	2%	31%	20%	100%	90%	100%	100%	98%	100%	NA	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	18%	11%	20%	0%	12%	11%	82%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	36	8	5	210	93	37	1,517	205	68	45	52	9	NA	419	103
with ICT ('000)	43	15	6	10,501	2,093	208	1,517	242	119	45	62	10	NA	1,354	198

NA=Not applicable

See the last page for country-specific definitions of these venues.

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	ND	28%	ND	35%	ND	26%	ND	24%	ND	26%	ND	24%
	Medium income	ND	54%	ND	46%	ND	56%	ND	45%	ND	56%	ND	45%
	High income	ND	7%	ND	6%	ND	9%	ND	4%	ND	9%	ND	4%
EDUCATION	No formal education	ND	3%	ND	2%	ND	5%	ND	6%	ND	5%	ND	6%
	Only elementary	ND	16%	ND	21%	ND	14%	ND	13%	ND	14%	ND	13%
	Up to high school	ND	50%	ND	36%	ND	37%	ND	32%	ND	37%	ND	32%
	College or university	ND	28%	ND	19%	ND	40%	ND	28%	ND	40%	ND	28%
AGE	14 and under	ND	12%	ND	15%	ND	9%	ND	14%	ND	9%	ND	14%
	15-35	ND	72%	ND	51%	ND	74%	ND	57%	ND	74%	ND	57%
	36-60	ND	12%	ND	23%	ND	12%	ND	8%	ND	12%	ND	8%
	61 and over	ND	2%	ND	2%	ND	0%	ND	1%	ND	0%	ND	1%
GENDER	% female	ND	53%	ND	49%	ND	39%	ND	39%	ND	39%	ND	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

modern libraries in cities that have no online services, and modern big city libraries with 50% ICT access.

The following findings emerged from this study:

- There is a strong political will for creating and supporting an information-based society, and the government seeks to achieve this goal despite challenges in ICT investment and education.
- There is a perception among 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, and there is a lack of relevant content. In the venues studied, operators often lacked adequate training to aid users. Limited economic means limits huge numbers of people, and people 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, and men generally have more opportunities to access technologies. The culture favors men over women, and more males use public libraries than females. However, in non-urban areas, more women use the libraries than males. Warinteks show 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 with people who lack sufficient education and employment opportunities. There are also many small- to medium-sized 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.

Recommendations

- Most of Indonesia's population has no access to ICTs and cannot gain access because of venue location, gender, or educational inequities.
- Internet cafes are often unaffordable, especially for the underserved. There is also a cultural inequity between men and women, and women have lower accessibility.
- The government encourages small- to medium-sized businesses to set up more public access ICT venues in exchange for help with building more e-commerce facilities.
- There are no significant restrictions on using ICTs for entertainment, chatting, or social networking at public libraries, Warmasifs, or Warinteks, but some pornography websites have been banned.
- There is a significant penetration of mobile phones as personalized media that can be used to gain information, and there are a number of wireless hotspots in cafes and public places for those who can afford a laptop. These new communication methods hold many possibilities for improving government organizations, saving time and money, creating e-participation, and influencing public policies.
- Some government websites have implemented blog facilities, but this seems to be beyond the capabilities of those who lack ICTs skills. However, the use of ICTs for developing web-based communities will aid the public and will affect ICT development in the future.
- Indonesia has many public libraries, but only about one percent offer ICTs. The availability of ICT services should be increased to provide better information services, and these services should target underserved communities and groups.
- There is little local content in public libraries, and local governments have a responsibility to develop local content needed by the underprivileged communities.
- Most public libraries are not sufficiently comfortable places for learning, and an improved learning environment is critical.
- Many underprivileged people still do not know about Warmasifs because the venues are relatively new (established in 2005 to 2008). Consequently, the government should publicize and promote Warmasifs in newspapers, television, and radio.
- Many underprivileged people perceive that computers are expensive and generally are used by people with medium or high social status. Local governments should provide free training in ICTs for underprivileged people.

Geography & Economy

Indonesia is the largest archipelago and the fourth most populous country in the world. The nation is composed of more than 17,000 islands that include five main islands and thirty smaller archipelagos. Java is the smallest of the main islands and has the largest population.

The national economy grew rapidly in the 1980s but suffered financial crises in the late 1990s. After 2000, the government instituted reforms that led to controlled inflation, and the economy then began to recover and unemployment decreased. These reforms created a slightly better environment for the underserved population, and the unemployment rate dropped by about one percent each year from 2004 to 2008.

The national population is estimated to be approximately 240 million. About 42 percent of the people live in urban areas, and 29 percent of the total population is under the age of 14. Education is compulsory for children between six and 15 years of age, and the literacy rate is said to be 92 percent.

COUNTRY PROFILE	
Total population* (millions)	223
Urban population* (millions)	110
Literacy (%)	92
E-readiness	3.4
Gini coefficient	0.36

*World Bank 2006 data

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Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés/Warmasif/Warinek: Two different types: *Warmasif, the Information Society Café*, whose objective is to accelerate information access for the entire Indonesian society, especially underserved communities; provides three services: e-commerce for small and medium business, e-library for students, teachers, and the public, and e-health information for all society. *Waritek, the Information Technological Café*, mostly embedded within local public libraries and higher education libraries, funded by Department of Research and Technology (The Government of Indonesia); aim to improve local information resources to help underserved populations access information.

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Three types: traditional libraries (located in small towns and villages with no ICT), semi-modern libraries (located in cities; provides ICT, but no online services), and modern libraries (located in big cities; provides ICT services).

Front photo: Telecenter sign in Indonesia. Photo courtesy of Indi and Rani Soemardjan (Flickr)



Kazakhstan

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Kazakhstan faces many challenges as it attempts to improve its public access to ICT. The country has extremely low population density, and wide ethnic diversity. Venues have little relevant content, and the available information is difficult to access due to high fees, bureaucracy, travel distances, and other factors. Most importantly, there is little demand for the information. However, literacy is almost universal, economic growth has been strong, and the government and citizens appear to be ready and willing.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Slow gains
Needs	Moderate
Needs (rank)	15/25
Readiness	High
Readiness (rank)	7/25

Findings

Kazakhstan's huge territory and low population density combined with its ethnically diverse population present a challenge to developmental and technological change. An over-dependence on 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 technologies 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.

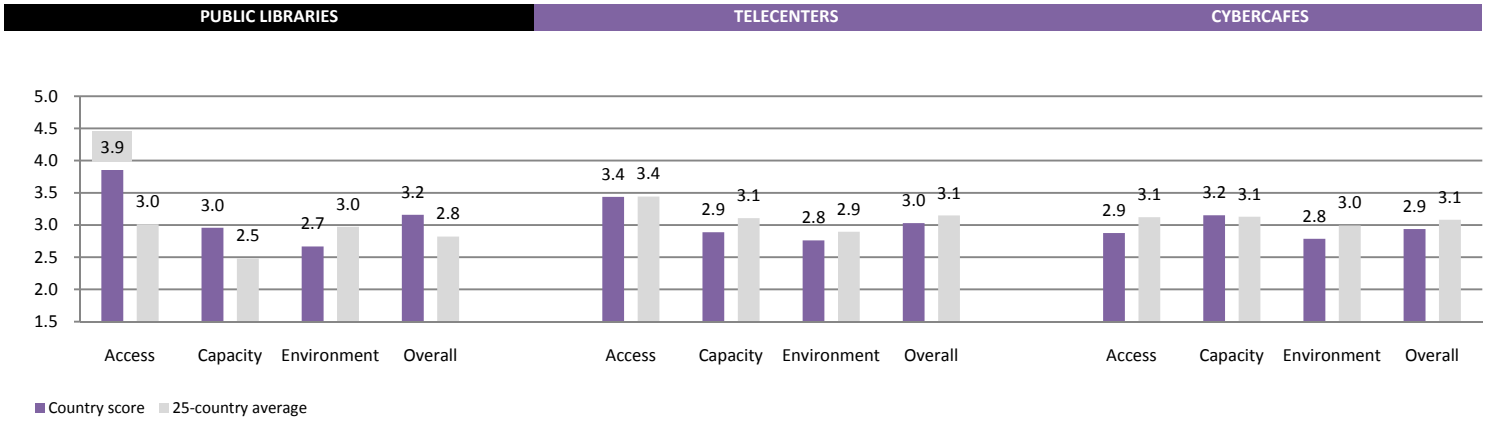
Rapid economic growth, high literacy levels, and new government programs are largely responsible for the increased computer and Internet penetration in Kazakhstan. Increased disposable income levels allow more and more people to own computers. Decreasing Internet tariffs and the increasing availability 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, and especially to underserved and vulnerable groups.

Eight types of public access ICT venues were examined this study:

- Public libraries are the most widespread and most common venue used to access information.
- Public Access Sites (PAS) are venues created as a part of the government Program on Reduction of Information Inequity. These venues include information kiosks, Internet access centers, and Internet access points at Kazakhtelecom (the national telecom operator) and Kazpost (the national postal service provider).
- Internet cafes are Internet access points that usually charge an access fee. Some are cafes with a few PCs offering Internet access, and other Internet cafes are part of computer gaming clubs.
- Wi-fi hotspots usually are free and hosted by cafés.

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS*			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	5,222	10,017	5,489	3,272	1,111	1,062	1,200	1,273	366	650	8,693	3,225	100	398	46
number with ICT	5,122	9,802	5,122	3,272	349	96	1,200	1,149	257	650	8,507	3,251	ND	146	13
% with ICT	98%	98%	87%	100%	31%	20%	100%	90%	100%	100%	98%	100%	ND	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	63%	11%	20%	23%	12%	11%	12%	73%	67%	2%	4%	1%
POP. PER VENUE ('000)	3	8	5	5	93	37	13	205	68	24	52	9	153	419	103
with ICT ('000)	3	15	6	5	2,093	208	13	242	119	24	62	10	ND	1,354	198

ND=No data

*See the last page for country-specific definitions of these venues. For this country, telecenters include PASs, and other venues include PICs, PSCs, and NGO resource centers. Country research team noted that the number of other venues was ">100."

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	6%	28%	0%	35%	5%	26%	ND	24%	7%	26%	10%	6%
	Medium income	88%	54%	93%	46%	90%	56%	ND	45%	93%	56%	90%	88%
	High income	6%	7%	7%	6%	5%	9%	ND	4%	0%	9%	0%	6%
EDUCATION	No formal education	0%	3%	0%	2%	0%	5%	ND	6%	0%	5%	ND	0%
	Only elementary	0%	16%	0%	21%	0%	14%	ND	13%	5%	14%	ND	0%
	Up to high school	52%	50%	0%	36%	29%	37%	ND	32%	38%	37%	ND	52%
	College or university	48%	28%	100%	19%	71%	40%	ND	28%	57%	40%	ND	48%
AGE	14 and under	0%	12%	0%	15%	0%	9%	ND	14%	0%	9%	0%	0%
	15-35	100%	72%	73%	51%	100%	74%	ND	57%	94%	74%	91%	100%
	36-60	0%	12%	27%	23%	0%	12%	ND	8%	6%	12%	9%	0%
	61 and over	0%	2%	0%	2%	0%	0%	ND	1%	0%	0%	0%	0%
GENDER	% female	92%	53%	40%	49%	71%	39%	ND	39%	62%	39%	73%	92%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

- Population Service Centers (PSCs) are newly established government-funded sites that offer access to government services, government information, banking, and related subjects. The number is rapidly growing, and the range of information and services offered is rapidly expanding.
- Public Internet Centers (PICs) are Internet access centers hosted by NGOs and international organizations.
- NGO Resource Centers are part of a number of NGO development projects created as resource centers across the country. They provide limited access to ICTs and are open primarily to targeted groups. There are about 100 such centers, and all of them offer digital ICTs, but most are not open to the public on a walk-in basis.
- Educational Institutions are important access points, but most schools, colleges, and universities are inaccessible to the general public.

There is an urgent need to expand the quantity and improve the quality of publicly accessible information to serve the needs of the population, especially among underserved communities and groups. The venues that exist have little relevant content, and the available information is difficult for many users to access for a variety of reasons including high access fees, bureaucratic hindrances, travel distances, and other factors. Most importantly, there is little demand for the information. Consequently, capacity-building programs, ICT skill training, public awareness campaigns, local content development, and increased competition in the telecom sector are essential to developing an information-based society.

Inexpensive and broadly available ICTs would play an essential role in providing access to information, and this study demonstrates that services such as e-government, e-commerce, e-education, and e-libraries are very appealing in Kazakhstan.

Recommendations

- Public awareness programs, local content development, especially online, and capacity building projects are urgent needs.
- Many people are unaware of the services that libraries offer, and public libraries do not advertise. An awareness campaign would help to bring people to the libraries, and also would inform people about information kiosks at PSCs.
- A similar awareness campaign is needed for e-government because most citizens do not understand the specific benefits e-government can provide. Also, all government staff must fully understand what e-government is and what principles assure its success. These campaigns should be launched via modern marketing techniques.
- The e-government portal provides a few information services, but the content holds little relevance to most people. The range of interactive information services provided by e-government should be improved and should focus on those services in greatest demand.
- Disabled and marginalized groups require particular affirmative action, and little exists at the present to meet their needs. The government should identify these groups specifically and allocate resources to include these groups into the appropriate programs. The existing Program on Reduction of Information Inequity fails to identify such groups, and they need assistance to gain access to information, including government services. Government sponsored public access sites should include these groups when targeting populations and when advertising access.
- Many people are reluctant to search for information even when it is available because they are simply unaware that appropriate information exists and that it can benefit them directly. To be successful and meet the information needs of the population, it is necessary to show what information exists and how it can directly benefit individuals.

Geography & Economy

Kazakhstan is the ninth largest country in the world, but has a population of only 15 million. Roughly the size of Western Europe, the nation had been the second largest republic of the former Soviet Union until gaining independence in 1991. Since then, it has experienced enormous political, economic, and cultural changes. Kazakhstan's economy relies heavily on its extensive natural wealth in oil, gas and metal ores, including large deposits of uranium. The worldwide markets for these products produced nearly a 10 percent annual GDP growth in 2002 through 2006. However, the economy has been sharply affected by the recent worldwide financial crisis.

Kazakhstan shares borders with Russia, Uzbekistan, China, Kyrgyzstan, and Turkmenistan. The climate is continental, with warm summers and colder winters, and the precipitation varies between arid and semi-arid.

The country is governed by a bicameral parliament, and as Kazakhstan's head of government, a prime minister chairs the Cabinet of Ministers.

Ethnically and culturally, Kazakhstan is widely diverse. Kazakhs are the largest ethnic group, followed by Russians and more than 100 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 communications.

COUNTRY PROFILE	
Total population* (millions)	15.3
Urban population* (millions)	8.8
Literacy (%)	99.5
E-readiness	3.8
Gini coefficient	0.34

*World Bank 2006 data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Educational Institutions: Schools, colleges, and universities that usually limit access only to students

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Internet cafés: Access centers that usually charge a fee, sometimes cafés with PCs offering Internet access, other times part of a computer gaming club

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Population Service Centers (PSC): Newly established government-funded points of access to government services, government information, banking, and other services

Public Access Sites (PAS): Created as a part of the framework for the State Program on Reduction of Information Inequity, which includes information kiosks, Internet access centers, and Internet access points at Kazakhtelecom (national telecom operator) and Kazpost (national postal service provider)

Public Internet Centers (PIC): Internet access centers hosted by NGOs and international organizations

Public libraries: The most widespread and most common venue for access to information; ICTs free of charge to members; no programs to reach underserved populations

WiFi hotspots: Numerous locations that are usually free and hosted by restaurants and cafés

Front photo: Sign for Internet café in Kazakhstan. Photo courtesy of Beth Kolko.



Kyrgyzstan

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

The country of Kyrgyzstan has a small, widely-dispersed, mostly impoverished population separated by 100,000 sq km of rugged mountains. The literacy rate is high but there is little local, relevant content at public access ICT centers. Developing more broadband access would help, but the terrain and unreliable power grid are limiting factors. The needs and readiness of Kyrgyzstan with regard to improving public access to ICT are low, but quick wins are possible.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Quick wins
Needs	Low
Needs (rank)	21/25
Readiness	Low
Readiness (rank)	22/25

Findings

The overall literacy rate in Kyrgyzstan is very high—around 98 percent. Those who speak Kyrgyz or Russian tend to be the most literate and have the highest interest in information and communication technologies.

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. The topography of this country also makes it difficult to hardwire and blocks line-of-sight transmissions. Landline networks beyond the more populous communities are quite limited.

Also, largely because of the lack of reliable and stable electric power, rural areas rarely have the technology or infrastructure for digital access to information.

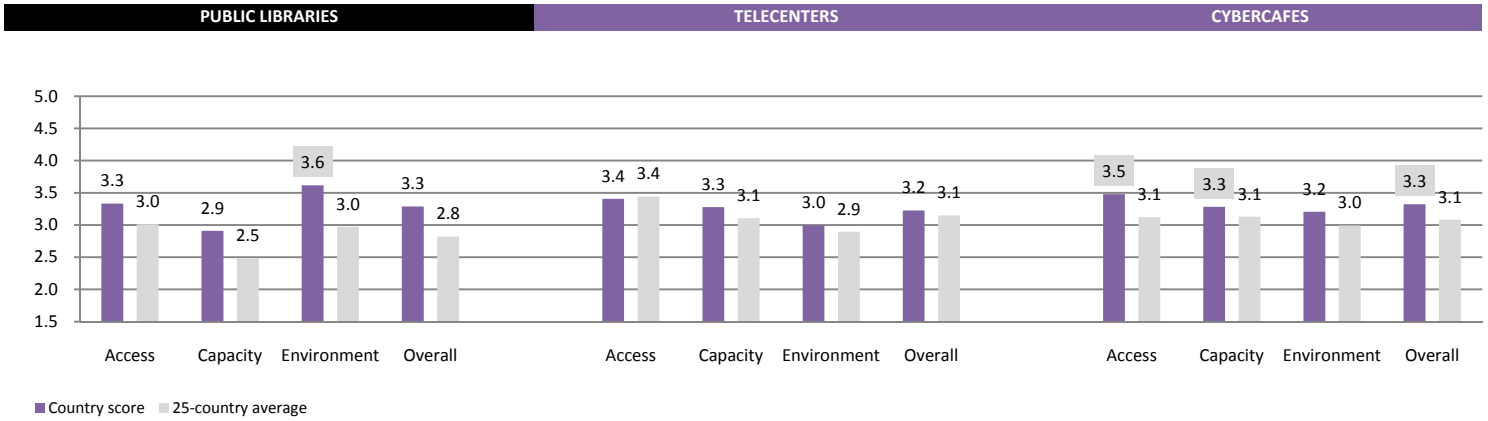
Residents of rural areas often migrate to seek work in the larger cities, or abroad in other countries such as Russia and Kazakhstan. This economically-driven migration is a drain on the able-bodied, predominantly younger work force, and on a generation more aware of digital services and technologies.

Given the numbers of rural residents moving to cities and abroad there is an increasing demand for affordable and reliable digital communication. Still, 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.

Other findings from this study include:

- There is a distinct lack of practical local content among all of the venues and almost no content in any language other than Kyrgyz and Russian. This deficiency places the ethnic minority populations at a great disadvantage, especially the two larger minorities who speak the Uzbek and Tadjik languages.
- Despite the fact that the demand for ICTs is developing rapidly, no unified report exists that describes the progress, and it was not possible to identify the current status of ICT development with any accuracy. The lack of current information persists, although Kyrgyzstan in 2002

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	6,380	10,017	5,489	289	1,111	1,062	11	1,273	366	6,000	8,693	3,225	80	398	46
number with ICT	6,149	9,802	5,122	58	349	96	11	1,149	257	6,000	8,507	3,251	80	146	13
% with ICT	96%	98%	87%	20%	31%	20%	100%	90%	100%	100%	98%	100%	100%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	5%	11%	20%	1%	12%	11%	94%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	1	8	5	18	93	37	472	205	68	1	52	9	65	419	103
with ICT ('000)	1	15	6	90	2,093	208	472	242	119	1	62	10	65	1,354	198

*See the last page for country-specific definitions of these venues. For this country, other venues refers to E-Clubs
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	25%	28%	ND	35%	0%	26%	14%	24%	25%	26%	17%	24%
	Medium income	58%	54%	ND	46%	100%	56%	86%	45%	63%	56%	17%	45%
	High income	0%	7%	ND	6%	0%	9%	0%	4%	0%	9%	0%	4%
EDUCATION	No formal education	0%	3%	ND	2%	0%	5%	0%	6%	0%	5%	0%	6%
	Only elementary	8%	16%	ND	21%	0%	14%	0%	13%	0%	14%	0%	13%
	Up to high school	75%	50%	ND	36%	0%	37%	57%	32%	28%	37%	28%	32%
	College or university	17%	28%	ND	19%	100%	40%	43%	28%	72%	40%	72%	28%
AGE	14 and under	0%	12%	ND	15%	0%	9%	10%	14%	9%	9%	50%	14%
	15-35	100%	72%	ND	51%	100%	74%	60%	57%	82%	74%	50%	57%
	36-60	0%	12%	ND	23%	0%	12%	30%	8%	9%	12%	0%	8%
	61 and over	0%	2%	ND	2%	0%	0%	0%	1%	0%	0%	0%	1%
GENDER	% female	54%	53%	ND	49%	ND	39%	ND	39%	ND	39%	ND	39%

ND=No data
 Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

declared ICTs a development priority and adopted a National Strategy on Information and Communications Development Technologies. The strategy aimed to implement ICTs by 2010 to create a sustainable, democratic information-based society and establish e-government, e-education, and e-economy.

- The existing ICT infrastructure favors the two largest cities, Osh and Bishkek, and the privatization of telecommunications and services has led to an increasingly competitive ICT sector and decreased user access fees. Bandwidth also has experienced rapid growth and reduced costs.
- In 2006, the KazSat communications satellite was launched from Kazakhstan and was expected to reduce the dependence by all Central Asian countries on European and US telecommunications satellites. A second KazSat launch is planned for 2009.

There is an urgent need to expand the quantity and improve the quality of publicly accessible information to serve the needs of the population, especially among underserved communities and groups. The venues that exist have little relevant content, and the available information is difficult for many users to access for a variety of reasons including high access fees, bureaucratic hindrances, travel distances, and other factors. Most importantly, there is little demand for the information. Consequently, capacity-building programs, ICT skills training, public awareness campaigns, local content development, and increased competition in the telecom sector are essential to developing an information-based society.

Inexpensive and broadly available ICTs would play an essential role in providing access to information, and this study demonstrates that services such as e-government, e-commerce, e-education, and e-libraries are very appealing in Kazakhstan.

Recommendations

Several key conclusions and recommendations emerged from this study:

- Greater nationwide support for ICTs is critical for improving public access to information, especially among underserved and disadvantaged populations.
- Capacity-building programs using training sessions, seminars, workshops, and conferences are urgently needed.
- There is a need for community-based information centers in this predominantly rural and mountainous environment.
- Government officials must learn the opportunities that are available to the population by using ICTs to deliver government information and services.
- Both the public and private sectors must cooperate and support the development of the online content, services, and information resources.
- More locally-relevant content in local languages is needed. There is a lack of locally-relevant content to meet the needs and demands of the public, and this drives the Kyrgyz people to access and use Russian language content.
- Subsequent studies to verify and validate the results of this present study are strongly recommended.

Geography & Economy

Kyrgyzstan is a landlocked country in central Asia which borders Kazakhstan, Uzbekistan, Tajikistan, and China. Rugged mountains cover three-fourths of the country, and only thirty percent of the land area is suitable for habitation.

The population is heavily concentrated in just a few localities, and two-thirds live in urban areas. More than 64 percent of the total population and 50 percent of those in rural areas live in poverty. Still, the population in general is educated and literate. People in the north (home to the Russian minority) are relatively wealthier. The southern regions are less well developed economically and are home to a number of ethnic minorities including Uzbeks and refugees from neighboring countries. The south also is troubled by ongoing border disputes.

Kyrgyzstan declared its independence in 1991 after having been a republic in the former Soviet Union. Despite another political revolution in 2005, the country continues to be marked by political instability and corruption. Although the government officially condemns press censorship, the nation's media face constant pressure. The Kyrgyz print media and radio and television broadcasters function under sharp restraints regarding the freedom of expression, but the regulatory framework that surrounds ICTs is comparatively liberal.

COUNTRY PROFILE	
Total population* (millions)	5.2
Urban population* (millions)	1.9
Literacy (%)	98
E-readiness	ND
Gini coefficient	0.30

*World Bank 2006 data
ND=No data

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Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

eCenters: Mostly in rural areas, initially established through the Last Mile Initiative (LMI project) of USAID

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Information & Resource Centers: Usually equipped with 3-5 computers, connected to the Internet, provide printer/copier/scanner and library containing materials generally related to a specific agenda

Internet Clubs: Private businesses, found in all big cities and some villages

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Open to the public, mostly located in city centers, towns, or village

Front photo: Landlines around the rural community of Sary Tash, Kyrgyzstan. Photo courtesy of kindsir (Flickr).



Malaysia

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Malaysia holds the distinction of having the lowest public access ICT needs of any country in this study, and the highest readiness. Public access to ICTs via the country's library system was among the best studied. The ICT infrastructure in urban areas is well-established, and ICT literacy and computer ownership are high except for in lower income groups. Mobile phone penetration is also very high. Improving access for underserved groups is still a challenge, but quick wins may be possible.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Quick wins
Needs	Low
Needs (rank)	25/25
Readiness	High
Readiness (rank)	1/25

Findings

Malaysia's government has initiated a well-supported policy to establish a technology-based society, and the effort actively promotes the development and implementation of information and communication technologies (ICTs). As a featured aspect of this initiative, the government has invested heavily in the infrastructure and venues to provide public access to information. ICTs are seen as a particularly vital contributor in achieving the national development goals, and Malaysia has been relatively successful in deploying and adopting ICT-based projects.

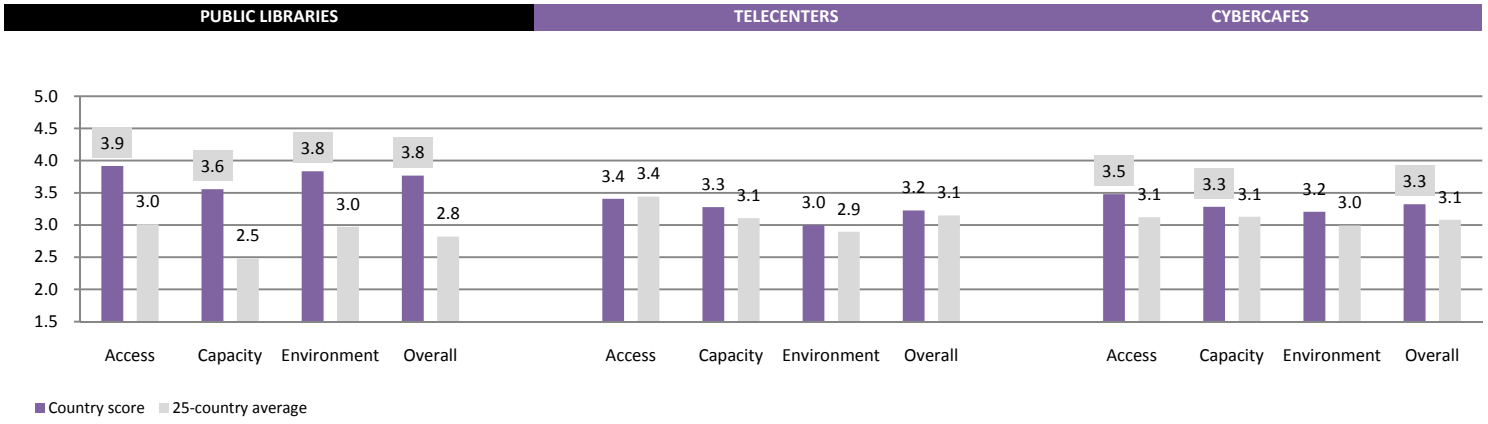
The ICT infrastructure in urban areas is well-established, and ICT literacy and computer ownership are high except for those in the lower income levels. Notably, the infrastructure and support services have lagged in the underserved and rural regions. However, there are policies and initiatives in place and several specific projects have been launched to bridge the digital gap between the urban and non-urban regions. These projects aim to improve accessibility to ICTs among underserved and rural communities and to deliver training, content building, and connectivity.

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 percent in urban areas, but no more than 12 percent in the rural areas. In the urban areas, citizens can access information either at home, in the workplace, at the cybercafés, or in the many wireless hotspots that exist in public places such as shopping centers and cafes.

Libraries, cybercafés, and hot spots appear to be functioning reasonably well as information access venues. The libraries are being supported by new telecenters opened either in or near the libraries. There are currently 250 of such centers and more than 500 are planned. The telecenters have been quick to adapt the government and private sector investments in accessibility and the initiatives designed to create services that improve the general welfare of their respective communities.

With some exceptions, the activities at the telecenters seem to be useful in overcoming the information access

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS*			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	1,368	10,017	5,489	1,326	1,111	1,062	42	1,273	366	ND	8,693	3,225	ND	398	46
number with ICT	ND	9,802	5,122	ND	349	96	42	1,149	257	ND	8,507	3,251	ND	146	13
% with ICT	ND	98%	87%	ND	31%	20%	100%	90%	100%	ND	98%	100%	ND	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	97%	11%	20%	1%	12%	11%	ND	73%	67%	ND	4%	1%
POP. PER VENUE ('000)	19	8	5	20	93	37	622	205	68	ND	52	9	ND	419	103
with ICT ('000)	ND	15	6	ND	2,093	208	622	242	119	ND	62	10	ND	1,354	198

ND=No data
 See the last page for country-specific definitions of these venues. For this country, telecenters include iCommunity Centers.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	ND	28%	ND	35%	ND	26%	ND	24%	ND	26%	ND	24%
	Medium income	ND	54%	ND	46%	ND	56%	ND	45%	ND	56%	ND	45%
	High income	ND	7%	ND	6%	ND	9%	ND	4%	ND	9%	ND	4%
EDUCATION	No formal education	ND	3%	ND	2%	ND	5%	ND	6%	ND	5%	ND	6%
	Only elementary	ND	16%	ND	21%	ND	14%	ND	13%	ND	14%	ND	13%
	Up to high school	ND	50%	ND	36%	ND	37%	ND	32%	ND	37%	ND	32%
	College or university	ND	28%	ND	19%	ND	40%	ND	28%	ND	40%	ND	28%
AGE	14 and under	ND	12%	ND	15%	ND	9%	ND	14%	ND	9%	ND	14%
	15-35	ND	72%	ND	51%	ND	74%	ND	57%	ND	74%	ND	57%
	36-60	ND	12%	ND	23%	ND	12%	ND	8%	ND	12%	ND	8%
	61 and over	ND	2%	ND	2%	ND	0%	ND	1%	ND	0%	ND	1%
GENDER	% female	ND	53%	ND	49%	ND	39%	ND	39%	ND	39%	ND	39%

ND=No data
 Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

inequities among women, unemployed people, and owners of small and medium businesses. The real economic benefits have not been measured in any definitive manner.

There is little conclusive data to reveal the extent of the effort to build locally relevant content or to connect to other related content in the country although this has been claimed to be important.

Recommendations

In general, public access venues in Malaysia have been successful, and could be further enhanced by implementing the following:

- The venues need to offer greater assistance to underserved communities.
- The venues should encourage local participation and broaden the scope of their services.
- Provide far more locally relevant content both in Bahasa and English and address other ethnic groups and languages.

The access to information in urban areas is a reflection of private computer ownership and Internet access at home, the workplace, Internet cafes, a few libraries, and hot spots in public places. Only a few of these venues are available to the lower income strata.

There is a clear understanding in Malaysia that affordable access to ICTs remains beyond the reach of the underserved communities and groups and improved access for those people is an urgent need. Although much has been done to make the services of telecenters more accessible, there are still those who cannot afford even small fees.

As Malaysia moves toward an ICT-based society, the following ongoing digital initiatives within the public library network strive to build technological capacity in the population. Collectively, the following initiatives are expected to draw the attention of the public and motivate them by providing motivating types of information, as well as free venues in which the public can access information.

- **Yang di-Pertuan Agong:** This portal was established in 2004 to educate the public about the royal ruling system in Malaysia.
- **International Islamic Digital Library:** Developed in 2004, this portal contains digital content from books, manuscripts, magazine articles, conference papers, and Islamic artifacts.
- **E-Library User Education:** This educational portal was developed by the National Library and UNESCO to teach users about the benefits of the Internet through a self-taught course. Using interactive media in libraries across the country, the module uses a tutorial concept to educate users.
- **Local Digital Content:** A broad-based list of subjects has been provided to educate users about current events and important national historical information.
- **MyLib:** This is the pilot project for the larger National Digital Library Initiative launched in 2000. As part of the MSC initiative, it is intended to promote the economical and efficient delivery of information and knowledge to all levels of the Malaysian society as a step toward implementing a knowledge-based society. Most importantly, this portal aims to provide more local content on the Internet. MyLib is a part of the PERDANA system where it acts as a portal or medium to market the local content and database materials of all of Malaysia's libraries via a website.

Geography & Economy

Malaysia announced its independence from Great Britain in 1957 and has grown to become a vibrant and modern nation in Southeast Asia. The country is composed of two regions — West and East Malaysia. The capital city of Kuala Lumpur is in the west central part of West Malaysia, which occupies the southern half of the Malay Peninsula and is bordered to the north by Thailand.

The population is estimated to be around 26 million, with most people of Malay, Chinese, and Indian origins. Malaysia's culture is diverse and while the majority of the population is Muslim, many are Buddhist and Hindu. 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 country's economy is strong, but has suffered from the global economic downturn of 2008. A significant percentage of the population is underserved and unemployed. Historically, Malaysia has been a significant source of agricultural products. Tourism, mining (tin), and fishing are also important to the economy. One of the most significant sources of revenue in recent years has been the burgeoning electronics manufacturing industry.

COUNTRY PROFILE	
Total population* (millions)	26.1
Urban population* (millions)	17.8
Literacy (%)	88.7
E-readiness	1.39
Gini coefficient	0.40

*World Bank 2006 data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

iCommunity Centers: Developed under the 'rural Internet project,' a national IT policy created to bring ICT into rural areas: established in order to improve the level of ICT literacy and awareness among targeted rural and underserved communities, to compensate for traditionally low PC and Internet penetration, and to provide rural communities with the opportunity to use digital technologies to improve their quality of lives.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Most completed telecenters are built as part of the public libraries in the non-urban areas under the scope of Universal Service Provision (USP) project.

Front photo: Internet café in Penang, Malaysia. Photo courtesy of Alex Pang.



Moldova

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Moldova is the poorest country in Europe and is still struggling to break free of communist rule even though it gained independence from the former Soviet Union in 1991. Most of the resources for public libraries are concentrated in the capital of Chisinau, and other public access ICT venues are concentrated mostly in the capital and other urban areas. Finding adequate information to conduct this study was also challenging. The challenges ahead for improving public access to ICT are steep.

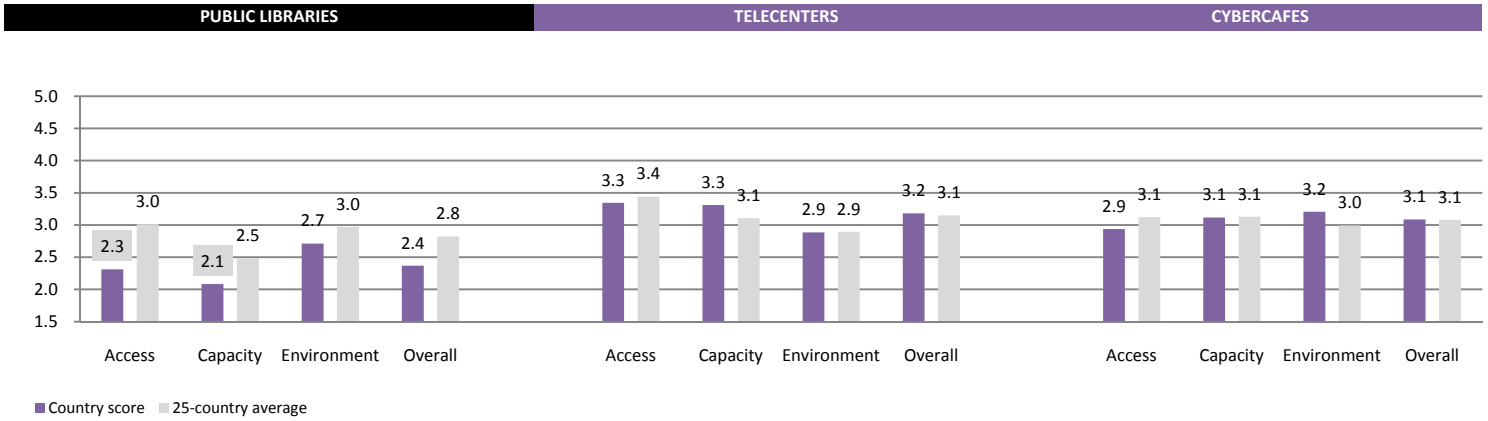
PUBLIC ACCES LANDSCAPE	
Challenges ahead	Slow gains
Needs	Low
Needs (rank)	22/25
Readiness	Moderate
Readiness (rank)	14/25

Findings

This study drew attention to the following list of issues and problems that characterize Moldova’s political, economic, and social position and affect the public’s access to information and ICTs:

- As Moldova established its independence and transitioned toward a market economy, the public library system suffered extensively from neglect, which produced a significant negative impact on public access to information.
- Because of the very limited local budgets and severe socioeconomic problems, especially in rural areas, public libraries have not received essential funding.
- The technologies, services, and information offered in Moldavian public libraries do not meet needs of the local population, especially in underserved communities.
- The library system in Moldova is unevenly developed, and the capital city, Chisinau, retains most of the available funding, technical equipment, and expertise.
- Public library development is notable only in those facilities that have benefited from projects, grants, and programs supported by international organizations and foundations, such as the Soros Foundation, USAID, and UNICEF. These few libraries contribute little to the total library system.
- With the meager economic recovery experienced in Moldova, the national government’s allocations for public libraries have increased slightly. Nonetheless, it is insufficient to support an adequate library system development.
- The non-governmental sectors are important providers of services designed to aid disadvantaged communities, and this especially noticeable in the way NGOs provide valuable services for local populations. The services include training in ICTs, and much of the effort focuses on gender equality, health, human rights,

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS*			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	5,650	10,017	5,489	1,391	1,111	1,062	3,720	1,273	366	500	8,693	3,225	39	398	46
number with ICT	ND	9,802	5,122	ND	349	96	ND	1,149	257	500	8,507	3,251	39	146	13
% with ICT	ND	98%	87%	ND	31%	20%	ND	90%	100%	100%	98%	100%	100%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	25%	11%	20%	66%	12%	11%	9%	73%	67%	1%	4%	1%
POP. PER VENUE ('000)	1	8	5	3	93	37	1	205	68	8	52	9	98	419	103
with ICT ('000)	ND	15	6	ND	2,093	208	ND	242	119	8	62	10	98	1,354	198

ND=No data

*See the last page for country-specific definitions of these venues. For this country, telecenters include NGO-operated centers, and other venues include telecommunications centers. Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	27%	28%	37%	35%	5%	26%	ND	24%	15%	26%	10%	24%
	Medium income	56%	54%	55%	46%	68%	56%	ND	45%	60%	56%	66%	45%
	High income	3%	7%	2%	6%	5%	9%	ND	4%	6%	9%	4%	4%
EDUCATION	No formal education	16%	3%	16%	2%	44%	5%	ND	6%	0%	5%	0%	6%
	Only elementary	22%	16%	34%	21%	31%	14%	ND	13%	13%	14%	50%	13%
	Up to high school	34%	50%	33%	36%	17%	37%	ND	32%	56%	37%	33%	32%
	College or university	28%	28%	16%	19%	8%	40%	ND	28%	31%	40%	17%	28%
AGE	14 and under	7%	12%	13%	15%	42%	9%	ND	14%	44%	9%	35%	14%
	15-35	59%	72%	46%	51%	52%	74%	ND	57%	50%	74%	57%	57%
	36-60	26%	12%	36%	23%	6%	12%	ND	8%	5%	12%	8%	8%
	61 and over	8%	2%	5%	2%	0%	0%	ND	1%	1%	0%	1%	1%
GENDER	% female	71%	53%	67%	49%	35%	39%	ND	39%	32%	39%	38%	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

youth, volunteer services, agriculture, prevention of human trafficking, institutional developments, and social inclusion of impaired people. The most severe problem facing the NGOs is financial sustainability.

- Over the past decade before this study was conducted, one of the most dynamic and viable sectors of Moldova's economy was the telecommunications and information system. A modest amount of local e-content has been developed since the implementation of the National Strategy on Building an Information Society (“E-Moldova”). However, it is evident that Moldova still has a highly pronounced digital technology gap.
- Internet cafés and telecenters are concentrated in urban areas, especially in Chisinau, where the infrastructure affords easier connectivity and access to broadband connections.

Recommendations

Based on the information gathered during the course of this study, the researchers drew several conclusions. They determined that only very general information about the public access landscape in Moldova is available, and for example, there are no available data regarding the specific hardware and software installed in the urban and rural public venues that have ICT capabilities. Similarly, little specific parallel information was found regarding the equipment and services provided by the NGOs. The publicly available data that do exist are available only from studies conducted by a few different research centers.

The time during which the fieldwork was performed imposed limitations on the study. During the summer, the number of users who visit public libraries and NGO facilities each day is lower than at other times of the year and is due in part to the summer vacation period for the academic staff, students, and administrators. To gather and interview the necessary number of respondents within the pre-set timetable, the team increased the number of venues to be investigated.

The results of this study are relevant to Moldova by providing new empirical knowledge about (1) the key public access venues, their strengths, weaknesses, and the opportunities in these venues; and (2) the information needs of the population, with a particular focus on underserved communities. This is an important issue to study, as Moldova's social and economic regeneration and the establishment of sustainable human development depends on the public access to ICTs, and their ability to adapt to the public's needs.

The study results revealed the extensive discrepancies that exist between urban and rural areas regarding the access to public venues. The findings from the research can be valuable in enabling the nation's government and other stakeholders to develop policies that will strengthen public access to ICTs, especially in underserved communities.

A subsequent representative national survey to provide greater qualitative and quantitative information to verify and validate the results of this study is highly recommended.

Geography & Economy

Moldova is a small, landlocked country in southeastern Europe and borders Ukraine to the north, east, and south. Romania lies to the west. The terrain primarily consists of hills and plains. Its main natural asset is fertile soil, which is the basis for the country's productive agriculture system, but other than this and a few important mineral reserves, Moldova has few natural resources. The country relies heavily on imports, and virtually all of its energy resources are imported.

Moldova was established as an independent republic in 1991 following the collapse of the Soviet Union, and began transitioning toward a free market economy, but this transition has been marked by extensive political, social and economic turmoil which has driven the country into deepest and most prolonged economic recession experienced by any of the transitioning former Soviet states. Moldova is currently the poorest nation in Europe. The government has instituted a number of reforms to rectify its problems, but these have had only very limited success. In response to this decline, more than a third of Moldova's population is estimated to be working in other countries as migrant laborers.

Moldova is a presidential parliamentary republic, and the president is elected by the parliament to a four-year term. The Communist Party of Moldova has ruled the country since 2001.

COUNTRY PROFILE	
Total population* (millions)	3.8
Urban population* (millions)	1.8
Literacy (%)	96.2
E-readiness	ND
Gini coefficient	0.33

*World Bank 2006 data
ND=No data

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Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

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Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés/Internet Cafés: Not organized in any network, association or other collective body

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Consist of country libraries, city libraries, and community (village) libraries

Telecenters/Telecommunication Centers: Organized in a National Network located in administrative centers; offer up-to-date services

Front photo: Technology is playing an important role in facilitating protests around the world. In this case, Moldovans are using Twitter to organize protests against their government. This April 2009 photo was taken in front of the UN building in New York. Photo courtesy of Dan Patterson.



Mongolia

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

One-third of Mongolia’s population is nomadic. The country also has large unpopulated areas and poor transportation methods. These factors and others make improving public access to ICT a difficult task. Still, for many Mongolians, mobile phones, computers, and the Internet are normal parts of life, even in rural areas. The government is firmly committed to improving access, and a combination of more laptops and more support for Khan Bank Internet Centers can help improve this in rural areas.

Findings

About one-third of Mongolia’s 2.6 million people are nomads who rely on herding as their primary source of income and who follow seasonal migratory routes to seek grazing land. These nomads, along with the people living in rural areas and remote settlements commonly lack access to current information and digital services. Vast sparsely populated areas characterize much of the country—the Gobi Desert spans much of the southern region, forests and mountains lie to the north, and steppes dominate the midlands—and these huge unpopulated areas and poor transportation methods combine to hinder public access to information venues.

Still, for many Mongolians, mobile phones, computers, and the Internet are normal parts of life, even in rural areas. Older generations have quickly adapted to innovation and change, and 82 percent of the population are cell phone subscribers. Many people lack basic computer skills, however.

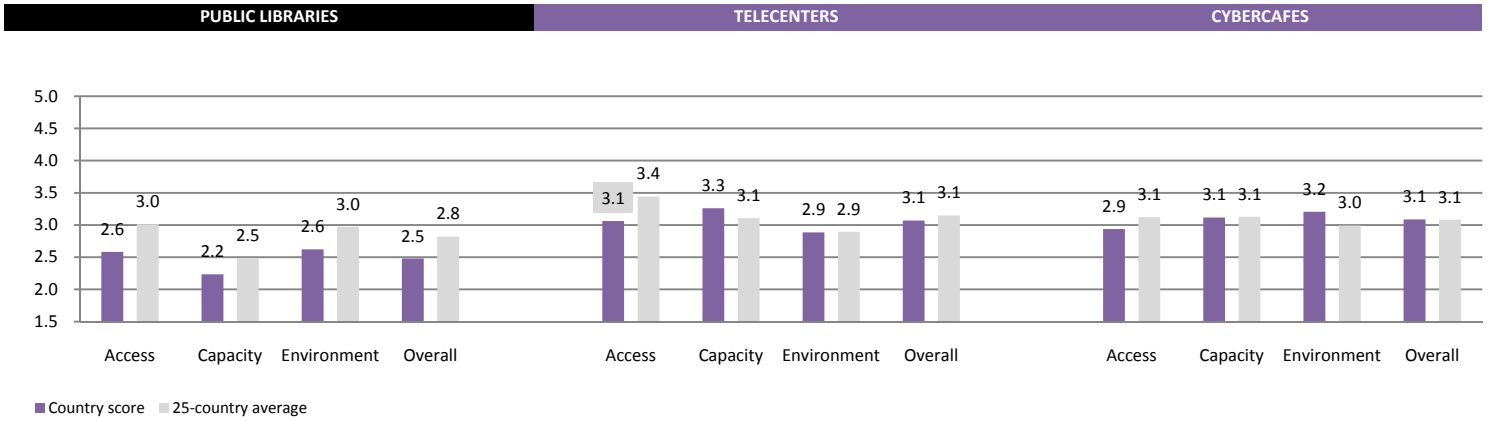
Aside from Mongolia’s geographic and demographic challenges to improving public access to ICT, the country’s public understanding of the value of information, the right to seek it, and knowing where it resides is also still stuck in a Soviet-era mindset where the control of information is seen power.

Other findings from this study include:

- Gender is not a defining factor in accessing information in Mongolia. The country enjoys relative gender equality.
- The government is firmly committed to improving ICT access. In this regard, the government actively fosters collaboration among government institutions, bilateral donors, international governments, and local and international donor organizations to expand digital ICT and aid public access to information venues.
- There are only two free public access Internet points in all of Mongolia available to serve visually impaired users, and both of these sites are in Ulaanbaatar. There is also lack of infrastructure in Mongolia—such as wheelchair ramps, elevators and wide aisles— to accommodate other impaired

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Slow gains
Needs	Low
Needs (rank)	23/25
Readiness	Moderate
Readiness (rank)	10/25

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	483	10,017	5,489	357	1,111	1,062	8	1,273	366	105	8,693	3,225	13	398	46
number with ICT	144	9,802	5,122	18	349	96	8	1,149	257	105	8,507	3,251	13	146	13
% with ICT	30%	98%	87%	5%	31%	20%	100%	90%	100%	100%	98%	100%	100%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	74%	11%	20%	2%	12%	11%	22%	73%	67%	3%	4%	1%
POP. PER VENUE ('000)	5	8	5	7	93	37	323	205	68	25	52	9	198	419	103
with ICT ('000)	18	15	6	145	2,093	208	323	242	119	25	62	10	198	1,354	198

*See the last page for country-specific definitions of these venues. For this country, other venues refers to Khan Bank Information Centers.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears high compared to the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	0%	28%	27%	35%	0%	26%	35%	24%	45%	26%	32%	24%
	Medium income	17%	54%	58%	46%	30%	56%	60%	45%	45%	56%	48%	45%
	High income	10%	7%	15%	6%	70%	9%	5%	4%	10%	9%	20%	4%
EDUCATION	No formal education	0%	3%	2%	2%	0%	5%	0%	6%	47%	5%	36%	6%
	Only elementary	6%	16%	48%	21%	0%	14%	13%	13%	27%	14%	29%	13%
	Up to high school	71%	50%	13%	36%	0%	37%	47%	32%	17%	37%	24%	32%
	College or university	23%	28%	37%	19%	100%	40%	40%	28%	9%	40%	10%	28%
AGE	14 and under	0%	12%	8%	15%	0%	9%	5%	14%	8%	9%	2%	14%
	15-35	84%	72%	50%	51%	55%	74%	65%	57%	90%	74%	85%	57%
	36-60	13%	12%	42%	23%	45%	12%	30%	8%	2%	12%	11%	8%
	61 and over	3%	2%	0%	2%	0%	0%	0%	1%	0%	0%	2%	1%
GENDER	% female	69%	53%	69%	49%	52%	39%	64%	39%	57%	39%	58%	39%

Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

users. Community planning decisions seldom account for the physically disabled or people with mobility issues, and older buildings that house government offices and state amenities rarely have elevators or wheelchair ramps.

- Mongolia's 357 public libraries are distributed among each aimag, soum center, and district of Ulaanbaatar. Collectively, the system is characterized by outdated materials, crumbling infrastructure, limited digital services, inadequate funding, little or no heating, and poor ventilation. Few people perceive them as electronic or Internet information sites, and while only 2.5 percent of the libraries offer digital services, they are often the only public information resource centers available.
- In the private sector, Khan Bank has established thirteen Internet centers (KBICs) in some of the most economically disadvantaged and remote settlements, and has stated its intent to add eight more sites. KBICs have become essential information and communication access points.
- Television ownership doubled between 2002 and 2007, and television continues to grow as an information and entertainment medium, powered by increasing numbers of people who own alternative energy generators.
- Mobile phone coverage is expected to expand to include every soum center by the end of 2009. The four service providers already offer services that allow users to access weather reports, commodity price information, entertainment, and news via SMS, and increased competition has lowered costs and mandated increased coverage.
- Many media outlets are owned by sitting politicians, and there is a low level of professionalism among journalists. Both of these factors contribute to a poor quality of information in the country.

Recommendations

Mongolia has an information access gap resulting from the concentration of access venues in the urban areas and provincial centers. Few such centers exist in rural areas. And because many Mongolians practice a traditional nomadic lifestyle, and others live in remote settlements, these people have little or no easy or affordable access to online services. Consequently, expanded user and operator capacity in ICT venues nationwide is vital.

The public library system is in decay and inadequately serves much of the public, especially with regard to digital services and current materials. Beyond this constraining library system are scrappy digital centers used mostly for communications and gaming.

The resolution of these and other related issues is sometimes compounded by the involvement of often corrupt and often naive political elements. Still unsolved is the debate regarding library rejuvenation versus added support for private digital developments that lack social entrepreneurship qualities. Finally, public awareness campaigns are an essential need.

The following are key recommendations of this research:

- Initiate public awareness campaigns to highlight the rights of the people to access information.
- Create and foster a culture of open learning, access to information, and the 'right to know' among the population and instigate activities to raise awareness.
- Train and deploy digital information facilitators to anticipate and meet local information needs including minority languages, developing appropriate computer literacy, and training the trainers.
- Promote the range and scope of information sources (including radio, television, and mobile phone) that can serve people at the community level.
- Support the KBICs as a low key, realistic, and potentially sustainable model that reaches the underserved in areas.
- Make laptop computers available to people in remote areas, along with portable Internet connection devices, such as those offered by G-Mobile. This would allow nomadic families to tap the Internet to seek information and to communicate.

Geography & Economy

Mongolia is the second largest landlocked nation in the world, wedged between Russia and China. There is very little arable land, but the country has extensive undeveloped deposits of mineral resources. The Gobi Desert spans much of the southern region, forests and mountains lie to the north, and vast steppes dominate the midlands. Huge unpopulated areas and poor transportation methods combine to hinder public access to information venues.

Mongolia transitioned to democracy in 1990 and has since become one of the most stable democracies in Asia, but issues still exist regarding freedom of the press and the impartiality of the media.

While roughly half of Mongolia's 2.6 million people live in or near the capital of Ulaanbattar, fully one-third are nomads who rely on herding as their primary source of income and who follow seasonal migratory routes to seek grazing land. The majority of the people are Khalkh. The official language, Khalkh Mongolian, is spoken by most of the population, but few printed and electronic materials are available in this language or in any minority language.

COUNTRY PROFILE	
Total population* (millions)	2.6
Urban population* (millions)	1.5
Literacy (%)	97.8
E-readiness	ND
Gini coefficient	0.30

*World Bank 2006 data

ND=No data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés: Run for profit; privately owned

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Khan Bank Information Centers (KBIC): Internet centers supported by the private sector located in some of the most economically disadvantaged and remote settlements. Hourly rates are approximately half of the price of fees charged by Internet centers and cybercafés in the cities.

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Hold a traditional position as a venue where people study, intellect is developed, and newspapers are read; not perceived by the general public as electronic or Internet information sites

Telecenters: Established by organizations including the Soros Foundation and the United Nations Development Program (UNDP) in a variety of areas throughout the country

Front photo: Nyamsuren Sambuu, Director of the Independence Council of Mongolia (NGO) provides instruction to herders using G-Mobile technology. Photo courtesy of PACT Mongolia



Namibia

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Namibia has high needs with regard to improving public access to ICT, and low readiness. However, steady gains are possible. Internet connectivity via landlines is low in both homes and public access venues, but cell phone coverage and use are high; focusing on this technology may be the most effective way of reaching underserved populations in areas with very low population densities. Improving literacy and clarifying government regulations might also help.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Steady gains
Needs	High
Needs (rank)	3/25
Readiness	Low
Readiness (rank)	18/25

Findings

Overall, access to information and communication technologies is quite limited throughout Namibia. One recent survey indicates that the Internet in Namibia is accessed mainly at the workplace or in schools (out of 854 households, only 51 used the Internet, and of those, only 3.9 percent had an e-mail address). Internet access is not available to many because of the limited number of fixed landlines, the high cost of Internet access, the lack of electricity, and the lack of bandwidth.

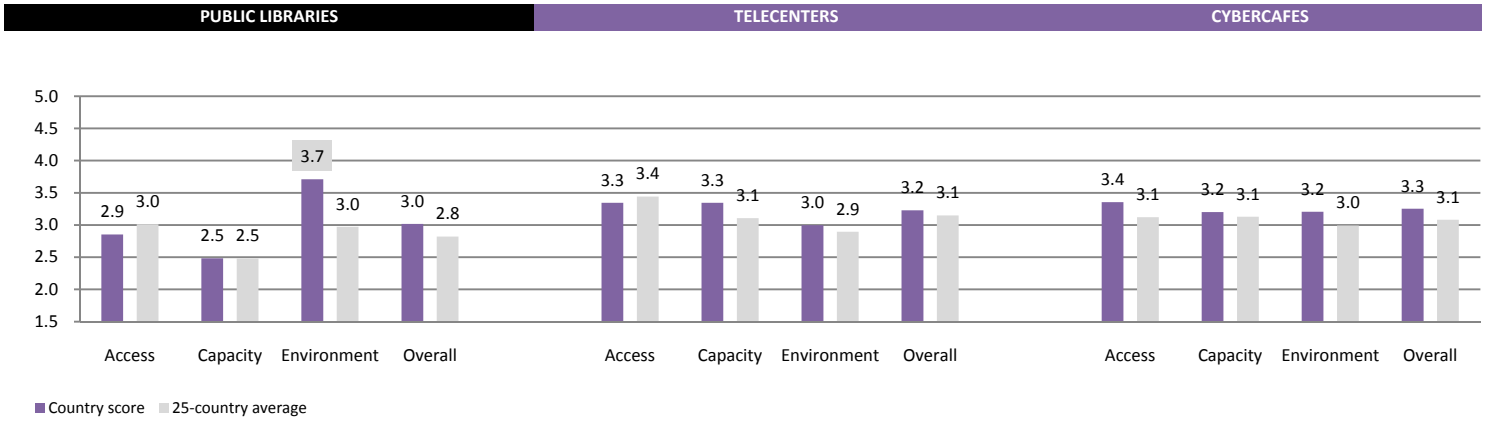
However, mobile phone usage is high, and 65 percent of the country has coverage. That figure percentage jumps to 100 percent along Namibia's arterial roads. Mobile telecommunication is thought to be the technology where the most significant advances in ICT access can be achieved. The publication of SMS messages in local newspapers, which are offered free, is an important means of disseminating information, as is radio, with over 94% of the population having access to this form of technology.

Given Namibia's extremely low population density and the vast unpopulated landmass, segments of the population live in relative geographic isolation. 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. SchoolNet Namibia has been particularly successful in its primarily donor funded ICT support and training for schools in Namibia, which represents the largest number of ICT access points in the country.

Among the people who have even a limited access to the venues, there is a distinct difference between the usage patterns of those users under 25 years of age and older users. Most older users use the Internet for work and business communications. The Internet is seen as an information source and little time is spent using it as an entertainment medium.

Many users under 25 have access to ICTs for which they do not have to pay. They use mobile services to link with their social contacts through chats and text messaging. They use the Internet for e-mail, but most prefer social

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	832	10,017	5,489	56	1,111	1,062	59	1,273	366	17	8,693	3,225	700	398	46
number with ICT	783	9,802	5,122	56	349	96	10	1,149	257	17	8,507	3,251	700	146	13
% with ICT	94%	98%	87%	100%	31%	20%	17%	90%	100%	100%	98%	100%	100%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	7%	11%	20%	7%	12%	11%	2%	73%	67%	84%	4%	1%
POP. PER VENUE ('000)	2	8	5	37	93	37	35	205	68	121	52	9	3	419	103
with ICT ('000)	3	15	6	37	2,093	208	204	242	119	121	62	10	3	1,354	198

*See the last page for country-specific definitions of these venues. For this country, other venues refers to SchoolNet.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	10%	28%	ND	35%	100%	26%	0%	24%	25%	26%	0%	24%
	Medium income	80%	54%	ND	46%	0%	56%	100%	45%	50%	56%	100%	45%
	High income	10%	7%	ND	6%	0%	9%	0%	4%	25%	9%	0%	4%
EDUCATION	No formal education	0%	3%	ND	2%	0%	5%	0%	6%	5%	5%	5%	6%
	Only elementary	0%	16%	ND	21%	20%	14%	0%	13%	30%	14%	20%	13%
	Up to high school	80%	50%	ND	36%	60%	37%	10%	32%	35%	37%	35%	32%
	College or university	20%	28%	ND	19%	20%	40%	90%	28%	30%	40%	40%	28%
AGE	14 and under	11%	12%	ND	15%	30%	9%	0%	14%	0%	9%	18%	14%
	15-35	89%	72%	ND	51%	70%	74%	88%	57%	80%	74%	82%	57%
	36-60	0%	12%	ND	23%	0%	12%	12%	8%	20%	12%	ND	8%
	61 and over	0%	2%	ND	2%	0%	0%	0%	1%	0%	0%	ND	1%
GENDER	% female	28%	53%	ND	49%	46%	39%	48%	39%	40%	39%	47%	39%

ND=No data
 Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

network sites. The Internet also is used to access music and films, mostly through pirated sources.

This study indicated that there are very few gender inequities among Namibia's public access ICT venues.

Recommendations

A lack of certainty in the regulatory environment has limited the deployment more public access ICT solutions. There is also 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 also a need for better coordination among government agencies regarding ICT rollout to ensure the optimal use of the limited resources.

The government has mandated that all 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 well as alternative power sources for those venues not on the power grid.

Other recommendations from this study include:

- Introduce more ICTs into libraries. This presents significant opportunities, but also significant challenges as only two public libraries in the country can currently connect to the Internet.
- An extensive ICT literacy campaign is required in the government as well the general population. ICT training should be used more prominently to train teachers, librarians, and civil servants.
- A situational analysis is needed to identify the existing community access points (clinics, libraries, schools, recreational centers, craft centers, etc.) and identify best practice.
- E-Government services need to be identified and implemented.
- More research is needed to assess the availability of content in local languages, the extent to which this is required, the likely levels of demand, and the types of content that could be developed for future use in libraries, schools, and youth development centers.
- With over 1 million mobile phone users in a population of 2 million people, there is great potential to reach the underserved through this form of technology.

Geography & Economy

Namibia straddles the Tropic of Capricorn on southwestern Africa's Atlantic coastline. The former German colony, occupied by South Africa for most of the 20th century, emerged as an independent country in 1990. It has been governed by the Marxist South-West Africa People's Organization (SWAPO) since then. The country functions under a representative democratic government with an elected parliament and national assembly.

Namibia is bordered to the north by Angola, the northeast by Zambia, the east by Botswana, the south by South Africa, and the west by the Atlantic Ocean. The country has a land area of 318,260 square miles and a population of just over 2.1 million, which gives it the second lowest population density in the world after Mongolia (although most of the population lives in urban areas due to the arid land). Eighty percent of the population is Christian. Seven percent of the people speak English, which is the official language, while 60 percent speak Afrikaans, and 32 percent speak German.

While Namibia has extensive agriculture, the country is best known as the world's largest producer of diamonds, and the revenue from diamond mining drives the economy.

COUNTRY PROFILE	
Total population* (millions)	2.1
Urban population* (millions)	0.7
Literacy (%)	83.3
E-readiness	ND
Gini coefficient	0.74

*World Bank 2006 data

ND=No data

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About this study

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This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés: Include traditional cybercafé venues, as well as banks and post offices with Internet computers available to the public

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Educational institutions: Two main educational institutions looked at in Namibia: the *Institute of Information Technology Windhoek*, which provides IT training to students, generally from higher income backgrounds; and the *Namibia Institute for Educational Development (NIED)*, which is an educational building complex for teachers, trainers, and curriculum developers

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Generally small, with only one room to accommodate ICTs, shelves, and a service counter

SchoolNet: the largest number of access points is currently set up through schools and the activities of SchoolNet Namibia. Most SchoolNet installations are situated inside the classrooms of existing schools with electricity and telephone access.

Front photo: Cell phone tower (center) disguised as a tree.
Photo ©2007 N. Walliser. All rights reserved.



Nepal

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Nepal has the second-highest needs ranking of any country examined in this study and the second-lowest readiness ranking. Literacy is low, poverty is high, the government is unstable, cultural barriers exist with regards to women’s rights, public access ICT venues are few and far between, and the country’s ICT infrastructure is inadequate. Still, while the challenges ahead are significant, slow gains are possible. There is an understanding and appreciation among the population of the potential benefits of improving ICT access, and good work is being done in this regard.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Slow gains
Needs	High
Needs (rank)	2/25
Readiness	Low
Readiness (rank)	24/25

Findings

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 information venues. In a nation where majority of the population lives on the threshold of poverty, few people use the venues on a regular basis.

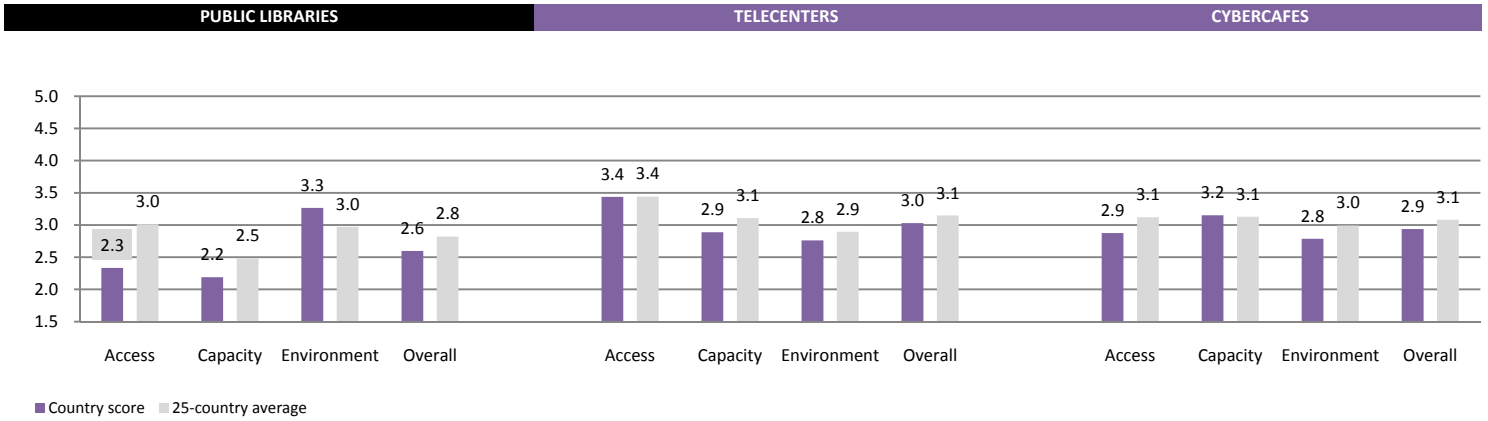
Information access in Nepal is centralized around the capital city of Kathmandu, and access to information in other areas, especially the rural areas, is difficult. Public access venues do not exist in much of the country. In some cases, remote regions lack public access to ICTs because of the geographic conditions, and 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 venues themselves do not actively discourage use by underserved people, little effort is made to assimilate them.

The 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 is needed, and there is an urgent need to provide the development to the operators and to librarians. There is very little locally relevant content in any of the venues.

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	5,990	10,017	5,489	100	1,111	1,062	240	1,273	366	5,000	8,693	3,225	650	398	46
number with ICT	5,358	9,802	5,122	33	349	96	240	1,149	257	5,000	8,507	3,251	85	146	13
% with ICT	89%	98%	87%	33%	31%	20%	100%	90%	100%	100%	98%	100%	13%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	2%	11%	20%	4%	12%	11%	83%	73%	67%	11%	4%	1%
POP. PER VENUE ('000)	5	8	5	276	93	37	115	205	68	6	52	9	43	419	103
with ICT ('000)	5	15	6	838	2,093	208	115	242	119	6	62	10	327	1,354	198

*See the last page for country-specific definitions of these venues. For this country, other venues refers to community libraries.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	14%	28%	67%	35%	33%	26%	0%	24%	9%	26%	ND	24%
	Medium income	71%	54%	33%	46%	67%	56%	50%	45%	51%	56%	ND	45%
	High income	0%	7%	0%	6%	0%	9%	0%	4%	0%	9%	ND	4%
EDUCATION	No formal education	3%	3%	0%	2%	0%	5%	0%	6%	0%	5%	20%	6%
	Only elementary	21%	16%	0%	21%	0%	14%	25%	13%	0%	14%	0%	13%
	Up to high school	15%	50%	100%	36%	80%	37%	25%	32%	0%	37%	50%	32%
	College or university	61%	28%	0%	19%	20%	40%	50%	28%	100%	40%	30%	28%
AGE	14 and under	6%	12%	0%	15%	0%	9%	0%	14%	4%	9%	ND	14%
	15-35	76%	72%	67%	51%	100%	74%	63%	57%	88%	74%	ND	57%
	36-60	12%	12%	33%	23%	0%	12%	0%	8%	4%	12%	ND	8%
	61 and over	6%	2%	0%	2%	0%	0%	0%	1%	0%	0%	ND	1%
GENDER	% female	21%	53%	ND	49%	40%	39%	13%	39%	33%	39%	ND	39%

ND=No data
 Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

Recommendations

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.

In Nepal, discrimination based on caste, class, and gender heavily influence access to information and ICTs, and while this is not expected to change in the foreseeable future, it will need to be altered significantly before information is accessible to all.

Nepal's geography also contributes to limiting access and 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.

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 curtailed, and civil liberties have eroded during recent government turmoil, but the political scenario appears to be slowly changing in a slightly positive direction.

Most of the public perceives access to information and ICTs as important to some degree, but training and capacity building is an urgent need. Several initiatives have been undertaken to decrease this gap, and the telecenter movement is an excellent example. The success or failure of these initiatives depends heavily on the support from the government.

Geography & Economy

Nepal is a landlocked country in South Asia bordered by China to the north and India to the south. The diverse landscape ranges from the humid Terai plains in the south to the Himalaya Mountains in the north. Most of the country's 28.3 million people live in the central highlands.

Nepal is one of the poorest countries in Asia, with one-third of the population living on an estimated US\$1 per day. Some of this poverty is a direct result of the country's Hindu caste system. Women suffer from gender inequity in general; in most communities, their access to education is limited, and they have very few opportunities to engage in activities that would provide them with a greater degree of economic freedom. Youth are also marginalized.

Nepal has a diverse combination of cultures, languages, and religions. The 2001 census listed 103 distinct castes and ethnic groups in the country. Most of the country practices Hinduism, but there is a strong Buddhist tradition here as well. Nepali is the official language, and is spoken by almost 60 percent of the population.

Until 1990, Nepal was an absolute monarchy. In 2006, an interim constitution was written that established a popularly elected government with the king as head of state.

COUNTRY PROFILE	
Total population* (millions)	27.6
Urban population* (millions)	4.5
Literacy (%)	53.7
E-readiness	1.73
Gini coefficient	0.47

*World Bank 2006 data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafés. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Community libraries: The distinction between community and public library is obscure, but for this study, community libraries have been defined as those venues that serve the people of a particular community and cater to the information needs of that particular community.

Cybercafés: No specific definition, but researchers note that cyber crime is attributed to the lack of standards for cybercafés

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Do not receive regular funds from the government ministry, but are provided with some financial support from the local ministries such as the District Development Committee (DDC) and District Education Office (DEO)

Telecenters: Many telecenters, ranging from government centers to private and NGO centers

Front photo: An Internet café in Beni, Nepal. Photo courtesy of Andrew Purdam.



Peru

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Peru faces significant challenges as it attempts to improve its public access to ICT. The country's public access venues are heavily concentrated in Lima and a few other urban areas. Its public libraries are old and outdated, lack political support, and rank well below the mean for all countries observed in this study. Peru's telecenters are also struggling. Expanding the capacity of Peru's cybercafés (which rank high in terms of access) may be the most promising way to provide rural and underserved populations with more information and services.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Significant
Needs	Moderate
Needs (rank)	11/25
Readiness	Moderate
Readiness (rank)	11/25

Findings

Location, income, age, education and gender all play key roles in limiting access to public ICT venues in Peru. Location may be the most important limiting factor. Information services and ICTs such as those available in special libraries are heavily concentrated in Lima and in a very few other cities. There is still a huge gap between the availability of venues in Lima and the rest of the country.

Income is also important because cost aside—even when ICT access fees are low—lower income populations commonly have less free time to search for information. Age and education affect access insofar as older people and people with low educational levels commonly lack the technological capacity to use the venues, and often cannot subsequently apply the information appropriately. Gender limits access to education and employment in Peru—and by extension, women have less reason to use public access ICT facilities for school or searching for employment—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 is not expected to change in the foreseeable future.

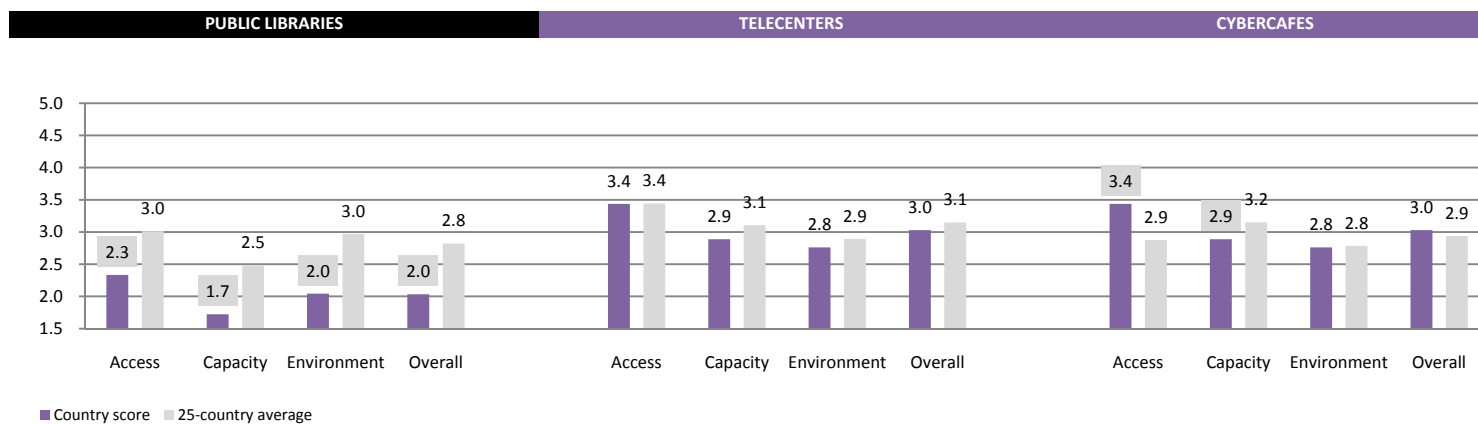
Peru does not have a solid tradition of public libraries and public libraries are not perceived to be key sources of valued information. Most special libraries are open to the public and are valued more by people seeking access to specialized information relevant to human development. In addition, there is little information available in any language other than Spanish (both in libraries and in other venues), and this is not expected to change soon.

Most of Peru's telecenters face financial sustainability problems. Some projects that promoted telecenters are looking at ways of involve cybercafés on to provide of services that telecenters lack.

Other findings from this study include:

- Cybercafés are widely available in urban communities and are the main venues used to access information in Peru, but while they offer connectivity, they do not produce content or develop capacities.
- Special libraries offer useful content, but they are not relevant, opportune, understandable, or available for much of the population.

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	32,507	10,017	5,489	729	1,111	1,062	72	1,273	366	31,600	8,693	3,225	106	398	46
number with ICT	31,886	9,802	5,122	117	349	96	72	1,149	257	31,600	8,507	3,251	98	146	13
% with ICT	98%	98%	87%	16%	31%	20%	100%	90%	100%	100%	98%	100%	92%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	2%	11%	20%	0%	12%	11%	97%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	1	8	5	38	93	37	383	205	68	1	52	9	260	419	103
with ICT ('000)	1	15	6	237	2,093	208	383	242	119	1	62	10	283	1,354	198

*See the last page for country-specific definitions of these venues. For this country, other venues refers to specialized libraries.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	35%	28%	68%	35%	30%	26%	40%	24%	60%	26%	40%	24%
	Medium income	63%	54%	32%	46%	70%	56%	50%	45%	37%	56%	60%	45%
	High income	2%	7%	0%	6%	0%	9%	10%	4%	3%	9%	0%	4%
EDUCATION	No formal education	4%	3%	4%	2%	5%	5%	15%	6%	4%	5%	ND	6%
	Only elementary	28%	16%	31%	21%	25%	14%	30%	13%	23%	14%	ND	13%
	Up to high school	40%	50%	55%	36%	20%	37%	50%	32%	35%	37%	ND	32%
	College or university	28%	28%	10%	19%	50%	40%	5%	28%	38%	40%	ND	28%
AGE	14 and under	4%	12%	49%	15%	0%	9%	0%	14%	8%	9%	20%	14%
	15-35	95%	72%	50%	51%	40%	74%	71%	57%	78%	74%	71%	57%
	36-60	1%	12%	1%	23%	52%	12%	29%	8%	14%	12%	9%	8%
	61 and over	0%	2%	0%	2%	8%	0%	0%	1%	0%	0%	0%	1%
GENDER	% female	49%	53%	51%	49%	40%	39%	20%	39%	39%	39%	40%	39%

ND=No data
 Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
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- Telecenters lack widespread distribution.
- Public libraries have outdated collections, are losing users, and do not have local or national political support.

Recommendations

The following conclusions and recommendations emerged from this study:

- Expand cybercafé services to include capacity-building programs, content development, and the means to create relevant useful content. They need to establish collaborative links with other venues.
- Make cybercafés a place to access information for human development to resolve the information needs of underserved communities.
- Develop ICT training programs for marginalized groups such as women, poor people, illiterates, non-Spanish speakers, and older people.
- Public libraries should be reoriented, updated, promoted, better funded, and aligned to serve the needs of the general population.
- Develop policies that allow public libraries to obtain and use external funds.
- Provide adequate useful information at special libraries and governmental sites to serve marginalized groups.
- Provide greater rural access to the Internet.
- Improve the distribution and accessibility of special libraries.

Geography & Economy

Peru is located in northwestern South America, bordered by Brazil to the east and the Pacific Ocean to the west. It is the fourth most populous country in South America, with more than 28 million people.

The country's landscape and climate varies from its narrow and largely arid plains in the west, to the Andes Mountain range that runs parallel to the coast, to the Amazon rainforest in the east which covers nearly 60 percent of Peru's total land area.

Peru's economy has been moderately stable in recent years, although the country has felt the effects of the worldwide economic downturn of 2007-2008. The country's economy relies heavily on mining and to a lesser degree on agricultural exports.

Spanish is the official language, spoken by 80 percent of the population. Literacy is estimated to be about 95 percent in urban areas and 76 percent in rural areas. Primary and secondary education are compulsory and free in public schools. However, the quality of public school education is low.

About 85 percent of the population is Catholic.

Peru is a presidential representative democratic republic with a multi-party system.

COUNTRY PROFILE	
Total population* (millions)	27.6
Urban population* (millions)	20.1
Literacy (%)	87
E-readiness	4.8
Gini coefficient	0.55

*World Bank 2006 data

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This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés/Cabinas: Introduced by the Red Científica Peruana (RCP) in the mid 1990s with a development purpose, but small entrepreneurs trained by RCP installed cabinas for pure business and profit purposes

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Supported by local governments at provincial and municipal levels; oriented toward school students because school libraries are almost nonexistent

Specialized libraries: Depend on an association, research center, scholarly society, professional association, museum, company, or any other institution, with collections focused on a particular theme. Some offer services to a particular community and others are publicly accessible; researchers in Peru only included the publicly accessible ones

Telecenters: Not many telecentres in Peru; service restricted to specific populations

Front photo: An Internet services sign in Peru. Photo courtesy of Nicolas Nova.



Philippines

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

The ICT infrastructure in the Philippines is strong. However, due to the country's widespread population, inequity barriers and ineffective political environment, it faces an uphill climb with regard to improving public access to ICT. Public libraries are poorly equipped and government-sponsored Community e-Centers have limited services and slow Internet access. However, unlike in many of the other countries surveyed, lower income groups are using public access ICT venues, meaning that the potential exists to reach this country's underserved groups.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Slow gains
Needs	Moderate
Needs (rank)	12/25
Readiness	Moderate
Readiness (rank)	12/25

Findings

While the Philippine government has fostered an enabling policymaking environment for ICT development through various international and national policies, the implementation of these policies is lacking. This lack of implementation is only part of the problem, however. Another is that Philippine society is deeply marginalized. The causes are political, social and economic, and include: (1) weak macroeconomic management; (2) employment issues; (3) high population growth rates; (4) an underperforming agricultural sector and an unfinished land reform agenda; (5) governance issues including corruption and a weak state; and (6) conflict and security issues.

The country's most marginalized (and underserved) populations live on the islands of Mindanao and Visayas. This population (not only on these islands but elsewhere) 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. Generally, these people need and seek information on basic needs and social services.

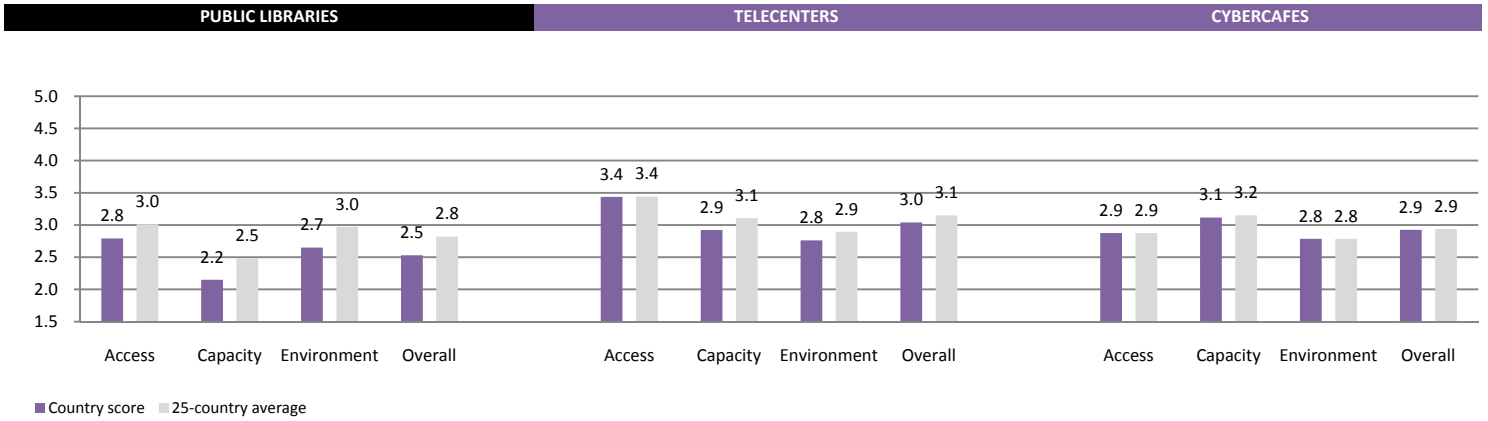
Three venues in the Philippines were identified as the most accessible and prevalent venues available to marginalized and underserved people: public libraries, government funded Community e-Centers (CeCs), and privately owned cybercafes. These venues are all reasonably affordable and accessible. However, in public libraries, reference books are generally limited or obsolete, and there is a near total absence of Internet access.

In CeCs and Internet cafes, users identified limited services, slow Internet access, and limited workspace as the primary barriers to access. Public libraries and Internet cafes are accessed more frequently than CeCs, which is a relatively new government-sponsored information venue. If the identified information barriers are addressed, these public access venues can become information and education hubs for the underserved and marginalized population.

The other key findings from this study include.

- Despite the widely recognized rampant corruption, the government has attempted to

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS*			CYBERCAFES			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	8,370	10,017	5,489	1,156	1,111	1,062	741	1,273	366	6,473	8,693	3,225	0	398	46
number with ICT	7,295	9,802	5,122	81	349	96	741	1,149	257	6,473	8,507	3,251	0	146	13
% with ICT	87%	98%	87%	7%	31%	20%	100%	90%	100%	100%	98%	100%	NA	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	14%	11%	20%	9%	12%	11%	77%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	10	8	5	75	93	37	116	205	68	13	52	9	NA	419	103
with ICT ('000)	12	15	6	1,066	2,093	208	116	242	119	13	62	10	NA	1,354	198

NA=Not applicable

*See the last page for country-specific definitions of these venues. For this country, telecenters refers to Community e-Centers.

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	ND	28%	40%	35%	ND	26%	ND	24%	ND	26%	ND	24%
	Medium income	ND	54%	50%	46%	ND	56%	ND	45%	ND	56%	ND	45%
	High income	ND	7%	10%	6%	ND	9%	ND	4%	ND	9%	ND	4%
EDUCATION	No formal education	0%	3%	ND	2%	0%	5%	ND	6%	0%	5%	0%	6%
	Only elementary	0%	16%	ND	21%	0%	14%	ND	13%	3%	14%	5%	13%
	Up to high school	50%	50%	ND	36%	44%	37%	ND	32%	37%	37%	66%	32%
	College or university	50%	28%	ND	19%	56%	40%	ND	28%	60%	40%	29%	28%
AGE	14 and under	14%	12%	0%	15%	0%	9%	ND	14%	16%	9%	ND	14%
	15-35	74%	72%	22%	51%	77%	74%	ND	57%	78%	74%	ND	57%
	36-60	10%	12%	0%	23%	19%	12%	ND	8%	6%	12%	ND	8%
	61 and over	2%	2%	0%	2%	3%	0%	ND	1%	0%	0%	ND	1%
GENDER	% female	48%	53%	ND	49%	52%	39%	ND	39%	39%	39%	ND	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

alleviate poverty. However, this is hindered by: (1) a lack of political stability and a failure to create productive employment; (2) failure to reduce rural land inequities; (3) the decentralization of government leading to under-funded local resources; (4) uneven development; (5) poor health and living conditions; and (6) a lack of opportunities for people with disabilities.

- Underserved communities lack access to information concerning health, livelihood and productivity, employment, education, and government services. Due to insufficient employment to absorb the labor force, many families depend upon income from abroad. Emigration comes at a high cost in terms of loss of knowledge and skills, and can have a high social cost.
- Nearly three-quarters of the country's poor people reside in rural areas, and much of this indigence is related to inadequate land-use policies. Networks and relationships of trust and reciprocity are lacking.
- While the underserved population lacks services, the infrastructure for ICTs is well-developed.
- Mobile network coverage has reached 99 percent of the country.

Recommendations

This study revealed that many people in the country's lower income groups (about 55 percent) use public access ICT venues despite potential affordability issues, compared to lower usage rates for middle income users (37.5%) and upper income users (7.7%). It is possible that once more people in lower income groups become aware of how ICTs can improve their lives, far more will make use of these venues. Therefore, national and local government agencies should initiate policies and programs to advance the role of ICTs in public libraries and the CeCs, and the potential of government-funded institutions and programs can become avenues to disseminate locally relevant information to the underserved constituency. The government supports the library network, but few libraries are located in rural areas.

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 areas
- Establishing capacity-building programs designed to work with initiatives that promote public access to information and communication venues as opportunities for change.
- Developing SMS capacity as an empowering tool for underserved sectors of society
- Improving 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.

Geography & Economy

The Philippines is the world's twelfth most populous country, with 90 million people spread out over 300,000 sq km and 7,107 islands covering the Philippine Sea (the western Pacific Ocean) between Indonesia and China. Half of the country's population lives on the chain's largest island, Luzon. More than 90 percent are Roman Catholic. 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 (92.6 percent) and educational development are roughly equal between genders.

The country is mountainous and covered by tropical rainforests. The economy rests heavily on agriculture, although there is some mining and light industry.

The Philippines was a Spanish colony from the 16th century until the United States gained control following the Spanish American War in the late 1890s. The US granted the Philippines full independence in 1946. Since then, the Philippines has seen extensive political and economic turbulence. The country currently has a presidential unitary form of government with executive, legislative, and judicial branches.

COUNTRY PROFILE	
Total population* (millions)	86.3
Urban population* (millions)	54.7
Literacy (%)	92.6
E-readiness	4.66
Gini coefficient	0.46

*World Bank 2006 data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Community e-Centers (CeCs): Designed to provide digital ICT services to the local government unit where they are located

Cybercafés: Mostly small enterprises, owners are now forming nationwide and regional associations to address venue issues

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Mandated by law to have one public library for every administrative division, but not given high priority by local governments due to limited budgets

Front photo: An Internet café in Golden City. Photo courtesy of Glen McBeth.



South Africa

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

South Africa faces significant challenges as it tries to improve its public access to ICTs. Its needs are high. Social inequality is extreme, and improving access to ICT ranks low compared to providing the basic necessities to underserved populations such as reliable electricity, clean water, affordable housing, employment opportunities, and help with the HIV/AIDS epidemic. Libraries are generally lacking in materials, telecenters are not functioning well, and skilled ICT labor is exiting the country. Readiness is high, however, and improvement can be made.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Significant
Needs	High
Needs (rank)	7/25
Readiness	High
Readiness (rank)	3/25

Findings

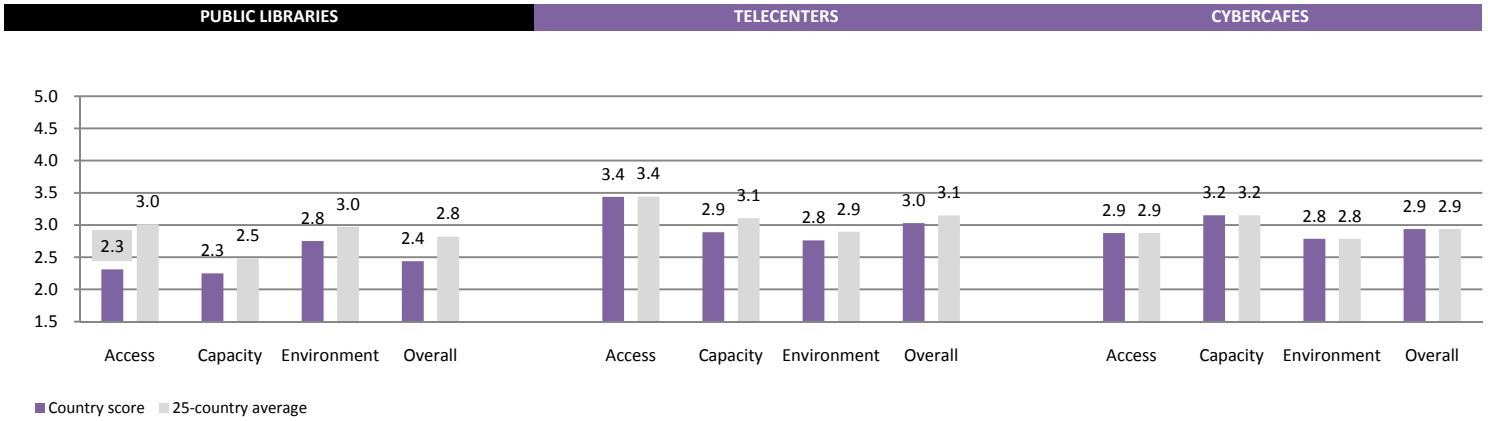
The legacy of apartheid remains in evidence in South Africa, and the government, since the demise of apartheid and the establishment of a democracy in 1994, has worked to address inequities. This is apparent across a range of efforts from building an infrastructure for schools, clinics, roads and electrification projects in rural and underserved areas to the drive toward 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 areas such as economic growth, inflation control, fiscal control and revenue collection, other sectors have been slow to meet certain stated national objectives. This is particularly evident given the national power crisis, the delays in improving the education system, and the approach to the HIV/AIDS pandemic.

The key findings from this study include:

- Overall, response to government efforts to improve access to ICTs has been mixed. The Internet is used by only a few people, and access costs are high nationwide. The deployment of ICTs is often hampered by limitations in the electric power supply. The telecenters are not functioning well, and many no longer operate. Mobile phone use has been the technology with the most pervasive impact, even in poor communities.
- There have been significant improvements in the public library network through efforts to extend the libraries into remote and underserved areas and to provide ICTs in these facilities. The increased emphasis on library enhancement and expansion highlights the need to develop more local content.
- An ongoing critical loss of technical and entrepreneurial ICT skills exists, as an estimated 200 to 300 ICT-skilled resources leave the country each month. Despite high unemployment rates, it is difficult to find sufficient numbers of skilled ICT workers to meet the increasing demand.

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	5,489	10,017	5,489	1,535	1,111	1,062	154	1,273	366	ND	8,693	3,225	3,800	398	46
number with ICT	1,334	9,802	5,122	384	349	96	ND	1,149	257	ND	8,507	3,251	950	146	13
% with ICT	24%	98%	87%	25%	31%	20%	ND	90%	100%	ND	98%	100%	25%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	28%	11%	20%	3%	12%	11%	ND	73%	67%	69%	4%	1%
POP. PER VENUE ('000)	9	8	5	31	93	37	308	205	68	ND	52	9	12	419	103
with ICT ('000)	36	15	6	123	2,093	208	ND	242	119	ND	62	10	50	1,354	198

ND=No data

*See the last page for country-specific definitions of these venues. For this country, other venues refers to HIV/AIDS support centers. Country research team noted that the number of other venues was ">3800."

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	17%	28%	ND	35%	ND	26%	61%	24%	82%	26%	100%	24%
	Medium income	65%	54%	ND	46%	ND	56%	29%	45%	14%	56%	0%	45%
	High income	18%	7%	ND	6%	ND	9%	10%	4%	4%	9%	0%	4%
EDUCATION	No formal education	10%	3%	10%	2%	ND	5%	25%	6%	0%	5%	ND	6%
	Only elementary	30%	16%	30%	21%	ND	14%	30%	13%	7%	14%	ND	13%
	Up to high school	50%	50%	25%	36%	ND	37%	35%	32%	47%	37%	ND	32%
	College or university	10%	28%	35%	19%	ND	40%	10%	28%	46%	40%	ND	28%
AGE	14 and under	3%	12%	13%	15%	ND	9%	4%	14%	ND	9%	ND	14%
	15-35	79%	72%	72%	51%	ND	74%	86%	57%	ND	74%	ND	57%
	36-60	19%	12%	14%	23%	ND	12%	16%	8%	ND	12%	ND	8%
	61 and over	0%	2%	0%	2%	ND	0%	0%	1%	ND	0%	ND	1%
GENDER	% female	47%	53%	ND	49%	ND	39%	49%	39%	ND	39%	ND	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

- The most notable broad-based ICT access impact has come via the thousands of privately run “phone shops.” They use subsidized voice call rates from the mobile operators who are required to provide discounted tariffs as part of their licensing obligations.
- Access to wi-fi venues appears to be marginal due to 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 provide games, and some telecenters earn revenues from these sources. Interestingly, some Internet cafés post signs forbidding the use of the equipment for scams.
- Radio is the most widespread information medium and 88 percent of the rural population listens to radio in any seven-day period. South Africa also has by far the largest television audience in Africa, and there are more than four million licensed television households. Additionally, South Africa hosts 17 daily newspapers, seven Sunday newspapers, 24 weeklies, and 161 local or country newspapers, most of them weeklies.
- Much of the population lacks access to essential services, such as electricity, clean water, health care, and telecommunication services, and to essential resources such as adequate housing, land, and work opportunities. These same people have little access to information that would improve their quality of life, and ICT access has not been viewed as essential.
- Given the socioeconomic 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.

Recommendations

The government has largely put the necessary policies in place to address universal information access, but problems have arisen in implementing these policies brought about by a lack of people trained both in ICT and appropriate project management skills.

A nationwide need exists to provide more functioning low-cost public ICT access points. Also, the underserved communities need more local information content, both in English and in local languages, in a format that is relevant, accessible, and understandable.

South Africa faces a huge demand for greater educational resources. Correspondingly, more information is needed on what users want to find on the Internet.

The library system lacks sufficient source materials, especially in a digital format, but libraries play an increasingly important role as information access venues. Libraries are being extended into underserved areas, and the government is providing more funds for libraries. The use of libraries as study and reading areas can create an opportunity to expose young people to ICTs. The existing network of phone shops, particularly in underserved areas, is playing an increased role in providing more affordable telephone access for underserved communities. Their expansion to provide Internet access is a logical next step.

Most HIV/AIDS support centers lack public ICT access points. Where these do exist, they are well used, and even where they do not exist, the necessary operational infrastructure is often in place, and the centers could become venues for large-scale deployment of ICTs.

These recommendations could extend the reach and understanding of public ICT access:

- Accelerate deregulation of the telecommunication sector to encourage competition, reduce costs, and increase accessibility to the Internet.
- Improve the availability, reliability, and use of low-cost electric power both in rural and urban areas through support for alternative energy systems, policy support, and promotion of efficient computer devices.
- Collaborate with the ICT private sector to accelerate the government’s plans for action.
- Provide additional skilled human resources to municipal and provincial levels of government to help address the severe lack of capacity to deliver public services.
- Provide broad-based training in ICT skills, and include ICT training and work programs for the youth to provide them with marketable ICT skills.
- Explore a programmatic intervention by those who can deliver ICT funds in partnership with one or more of the HIV/AIDS programs. The managerial and administrative framework exists, and there is an expressed need for such an intervention.

Geography & Economy

South Africa sits at the extreme southern tip of Africa. Covering 1.2 million sq km, its coastline extends more than 2,500 km from the Atlantic Ocean around the Cape of Good Hope to the Indian Ocean. The country has a varied climate as well as topography, from subtropical in the east to Mediterranean in the southwest to hot and dry inland and north to the Kalahari Desert.

South Africa is a multiparty democracy dominated by the African National Congress party. It has one of the most progressive constitutions in the world and guarantees media freedom and the right to access public information.

There are eleven official languages in the country. 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

South Africa, well known for enormous natural resources and for its emergence as a prominent industrial nation in Africa, has a robust and well-developed media and information sector. The overall national economic position is secure and growing steadily, but striking contrasts linger within the social sector.

COUNTRY PROFILE	
Total population* (millions)	47.4
Urban population* (millions)	28.3
Literacy (%)	82.4
E-readiness	6.10
Gini coefficient	0.58

*World Bank 2006 data

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The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

HIV/AIDS Support Centers: Offer resources through three main programs for Orphaned and Vulnerable Children, Child-Headed Households, and young people in combating HIV/AIDS; primarily in disadvantaged communities

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Open to the public and funded by the provincial and municipal governments, with grant allocations from the national government; characterized by a few well-resourced libraries in the old "white" municipal areas and many under-resourced libraries in other areas

Telecenters: Run by the Universal Service and Access Agency of South Africa; mandated by the South African government to ensure that all citizens have equal access to ICTs

Front photo: The Hogsback Library on South Africa's eastern cape. Photo courtesy of Valerie Hinojosa.



Sri Lanka

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Sri Lanka has moderate levels of needs and readiness with regard to public access to ICT, but improvements will be slow in coming.

Although the government is committed and the regulatory environment is favorable, connectivity and access in non-urban areas is problematic and content development and information delivery are constrained by many barriers, including venue location, disability access, language diversity, and a general lack of ICT skills among users. Approaches to improving ICT access include more mobile phone applications and more library funding.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Slow gains
Needs	Moderate
Needs (rank)	14/25
Readiness	Moderate
Readiness (rank)	16/25

Findings

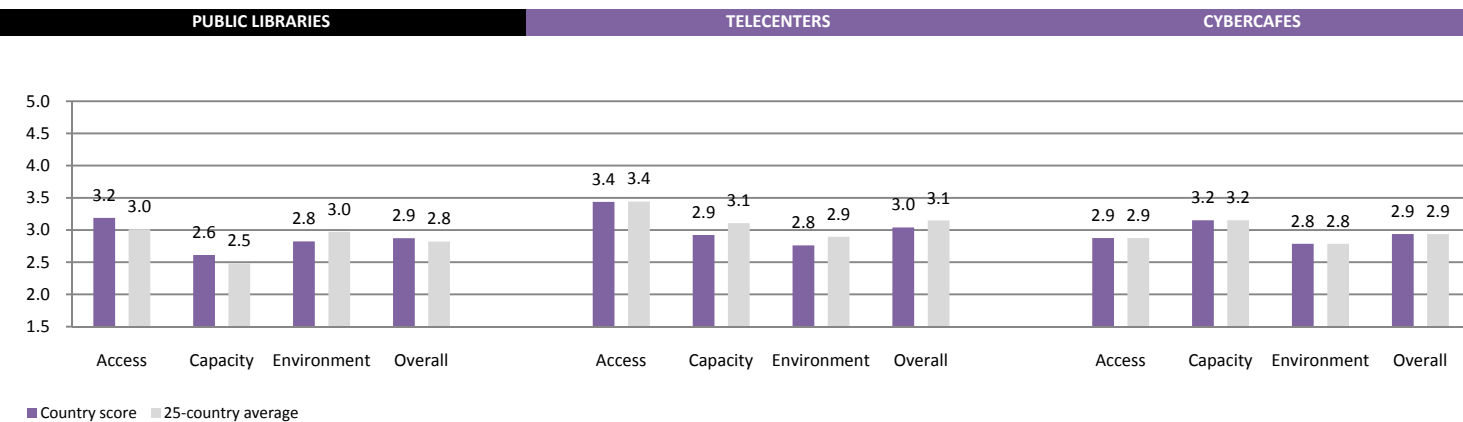
Sri Lanka has a relatively high national literacy rate and features gender parity in general education. Schools report low dropout rates and an 82 percent junior secondary education completion rate. University enrollment is increasing, especially in science and technology with an emphasis on computer literacy, and the results fit well with the widespread adoption of ICT as an instrument to help promote socioeconomic development.

Sri Lanka is shifting to a knowledge-based economy, in part, by using ICTs as a tool for reducing poverty, promoting economic growth, and fostering peaceful social change while struggling to overcome internal political conflicts that at times have turned violent. The country has faced protracted political and ideological conflicts for twenty-five years, but the people and the economy have been resilient although progress has been slow. In 2004, Sri Lanka initiated its national program to expand digital technology through institutional reforms, regulatory changes, infrastructure development, and streamlining government processes.

The key findings from this study include:

- Connectivity and access to venues in non-urban areas is problematic, and the central hills also 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.
- The legal and regulatory environment encompassing public access to information venues is favorable. Foreign investment in the telecommunications sector has increased, aids the development of infrastructure, and contributes to the growth of landline and mobile communication 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 alleviated partially by (1) adopting UNICODE fonts, (2) introducing a web page translation tool such as a Firefox plugin for Sinhala and Tamil, and (3) adding a Google

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS*			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	1,875	10,017	5,489	1,011	1,111	1,062	558	1,273	366	39	8,693	3,225	267	398	46
number with ICT	865	9,802	5,122	1	349	96	558	1,149	257	39	8,507	3,251	267	146	13
% with ICT	46%	98%	87%	0%	31%	20%	100%	90%	100%	100%	98%	100%	100%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	54%	11%	20%	30%	12%	11%	2%	73%	67%	14%	4%	1%
POP. PER VENUE ('000)	11	8	5	20	93	37	36	205	68	510	52	9	74	419	103
with ICT ('000)	23	15	6	19,674	2,093	208	36	242	119	510	62	10	74	1,354	198

*See the last page for country-specific definitions of these venues. For this country, telecenters are Nenasala centres, and other venues are specialised Vidatha centres.
 Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	20%	28%	38%	35%	15%	26%	43%	24%	5%	26%	10%	24%
	Medium income	66%	54%	58%	46%	80%	56%	43%	45%	85%	56%	80%	45%
	High income	3%	7%	2%	6%	3%	9%	14%	4%	8%	9%	8%	4%
EDUCATION	No formal education	0%	3%	0%	2%	0%	5%	0%	6%	10%	5%	34%	6%
	Only elementary	15%	16%	18%	21%	9%	14%	57%	13%	55%	14%	52%	13%
	Up to high school	71%	50%	75%	36%	85%	37%	43%	32%	23%	37%	12%	32%
	College or university	14%	28%	7%	19%	6%	40%	0%	28%	12%	40%	2%	28%
AGE	14 and under	6%	12%	12%	15%	8%	9%	15%	14%	6%	9%	1%	14%
	15-35	64%	72%	58%	51%	78%	74%	80%	57%	72%	74%	86%	57%
	36-60	24%	12%	25%	23%	14%	12%	5%	8%	20%	12%	12%	8%
	61 and over	5%	2%	5%	2%	0%	0%	0%	1%	2%	0%	1%	1%
GENDER	% female	44%	53%	49%	49%	46%	39%	57%	39%	26%	39%	17%	39%

Percentages may not add up to 100% in all cases
 See the last page for country-specific definitions of these venues
 Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

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 and UNICODE communities already exist.

- The public can access information through newspapers, magazines, journals, books, educational CDs, audio and videocassettes, radio, and television. Independent print and broadcast media coexist with government-controlled media, and while the majority of both operate from Colombo, state and community transmitters broadcast in several regions. Regional newspapers and alternative media are active nationwide. Most newspapers maintain online editions and journalists turn increasingly to the Internet to access information.
- The convergence of technology has fostered citizen journalism and increasing numbers of bloggers are online. Censorship has been imposed at times, but there is relative freedom of expression. When imposed, suppression of information often casts a partisan view. Online sites sometimes have 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 those institutions instead of disseminated to potential users in appropriate formats.

Other findings from this study include:

- Skilled and knowledgeable leadership is critical to the success or failure of venues meeting the information needs of the communities they serve.
- Despite the emphasis on information for socioeconomic development, the highest demand by users of the venues that were studied was for information on current events followed by information on education and entertainment.
- There was little location-specific information in venues that could be used for improving incomes and local economies.
- Digitized content will greatly benefit users. Government call centers and the increasing number of government agencies that have a web presence, and the content being generated in local languages provide improved opportunities for public to access information.
- Physical distances to venues hinder public access to information. Public libraries are often in better locations than other venues, but some rural libraries are poorly located. The government has not given adequate attention to easy access for older people, the disabled, and in some instances women. The rural terrain often poses challenges to accessing venues.
- Users generally have inadequate ICT skills.
- There is a general lack of awareness, linkages, and coordination among information providers. In this context, ICTs can play a significant role by connecting information providers through an electronic network.
- Mobile applications could be developed to reach underserved communities.

Recommendations

The following are key recommendations from this study:

- Revitalize the public library system and ensure regular financial allocations, establish Provincial Library Services Boards where they have not been established, recruit professional librarians, upgrade the services, automate the facilities, and train an adequate staff for each location.
- Readdress how and where information is located. This study found that the available information is often scattered, disorganized, and difficult to collect.
- Improve the information literacy of communities to enable them to identify the most appropriate source for the information they require, and accelerate the present government program of providing e-government services.
- Collaboration and resource-sharing are imperative. Ease the overall resource constraints. Readdress the lack of collaboration among similar types of venues and across venues. Operators complained of a lack of resources and most of the operators of the venues studied were not even aware of other public access information venues in their localities. The venues functioned as stand-alone units.
- Base content development initiatives on needs assessments to capture the critical location-specific needs. Encourage greater community involvement to give ownership to the project.

Geography & Economy

Sri Lanka lies off the southeastern coast of India in the Indian Ocean. The terrain is mostly low with flat to rolling plains, with a mountain massif in the southern interior. Because of a rain shadow effect, Sri Lanka has two main climatic zones: a southwestern wet zone and a northerly dry zone.

A 2006 census listed the population at 19.9 million with the Sinhalese majority constituting nearly three-quarters of this total. Seventy percent are Buddhist. Except in the Northern Province, from which separatists expelled all ethnic groups except Tamils, Sri Lanka's other provinces have an ethnic and religious mix.

Sinhala, Tamil, and English are the major languages. Sinhala and Tamil hold official status while English serves as a linking language. Ninety-two percent of the people speak Sinhala, and 81 percent can read and write the language. Fifteen percent of the population can speak English, and 19 percent can read and write it.

Constitutional provisions protect gender equality, and gender disparities have been virtually eliminated in primary, secondary, and tertiary education.

Nearly 42 percent of the population lives on less than US\$2 a day while another six percent lives on less than US\$1 a day.

COUNTRY PROFILE	
Total population* (millions)	19.9
Urban population* (millions)	3.0
Literacy (%)	90
E-readiness	3.93
Gini coefficient	0.33

*World Bank 2006 data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Cybercafés/EasySeva: Combination of cybercafé and telecentres, which aim to establish community information centers and develop entrepreneurs in the ICT sector

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

Nensala Centres: Set up to democratize ICT access and extend affordable access to underserved communities as a sub-program of the national eSri Lanka program, launched in 2004

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: The most extensive network of public access information venues in the country; service urban and non urban locations; strive to integrate themselves into the community by extending their services to meet the needs of people who are economically and socially marginalized; a place for lifelong learning, a cultural centre, a community facility, a source of information, a social space but above all, a facility for study; by and large provide traditional services

Specialised Information Centres: *Vidatha Resource Centres* and *Rural Agricultural Knowledge Centres* were established to improve livelihood activities. *Vidatha* centers operate under the Ministry of Science & Technology and aim to introduce and disseminate information about low-cost technology to micro and small-scale entrepreneurs. *Rural Agricultural Knowledge Centres* operate under the Department of Agriculture and target farming communities.

Front photo: Minister Ashraff lighting a traditional oil lamp to commemorate the opening of a new computer and training center in Akkaraipattu. Photo courtesy of Rebuild Ampara.



Turkey

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Turkey has low needs and high readiness with regard to improving public access to ICT; it should be poised to make steady gains in the coming years. The government is strongly committed to improving public access with the nationwide rollout of its Public Internet Access Centers (PIACs) well underway, particularly as integrated into the country's Public Training Internet Centers (PTICs). It would help to have a central authority in charge of this effort, however, and for more data to be available about the underserved populations these venues are trying to help.

PUBLIC ACCESS LANDSCAPE	
Challenges ahead	Steady gains
Needs	Low
Needs (rank)	24/25
Readiness	High
Readiness (rank)	2/25

Findings

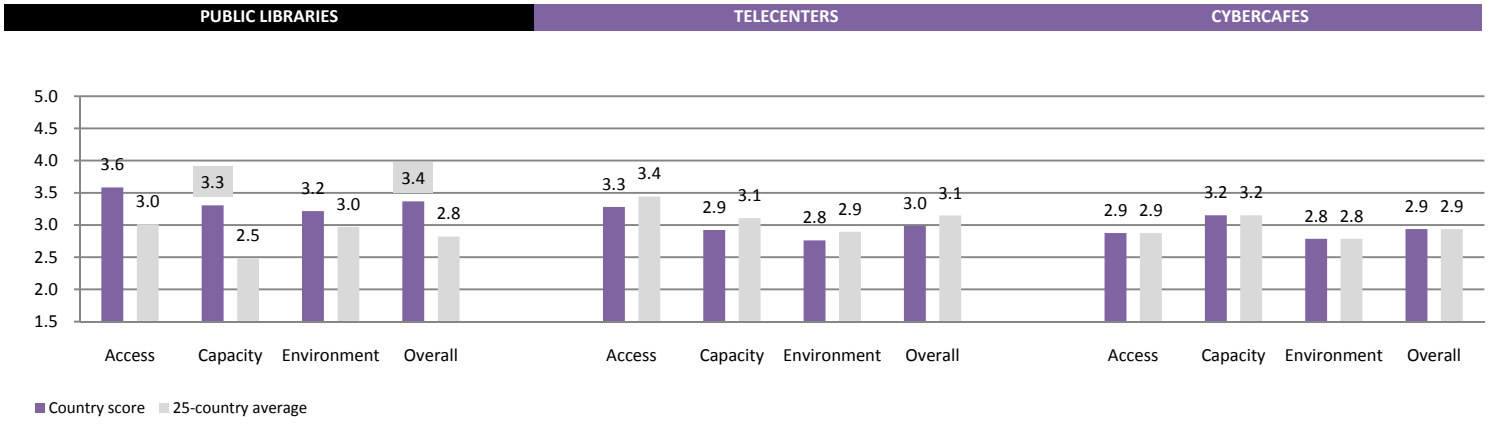
With the spread of the Internet, interest in ICTs has accelerated in Turkey's business world which in turn has led more individuals to own computers and use them in cybercafés. The government has prioritized ICT use in education, businesses, and the public sector, and encourages capacity-building among the population. Although there are regional and socioeconomic differences in adopting ICTs, the general trend seems to be positive and moving forward.

Until recently Turkey did not have any public venues where the citizens could access ICTs freely. Indeed, the culture of providing open public access to information did not exist in Turkey until recently, and this was especially true for government agencies charged with providing information to the public. The country's major ICT venues were cybercafés, schools and universities, workplaces, and households of people who could afford to own computers. Some libraries in district centers also had small computer labs with Internet access.

Today, there is strong political support to make ICTs available to citizens, businesses, and public sector organizations. In 2006, the government announced it would open 4500 new Public Internet Access Centers (PIACs) as part of a nationwide eTransformation effort. About half of these PIACs have already been established. PIACs generally consist of 10-20 Internet-connected computers plus printers and scanners, and some sort of training and support appropriate to the local community. These centers have been incorporated into libraries, municipal centers, and Public Training Centers (PTCs) throughout Turkey, transforming them into new Library Internet Centers (LICs), Municipality Internet Centers (MICs), and Public Training Internet Centers (PTICs).

Over 1300 PTICs currently exist in Turkey. The pre-Internet Public Training Centers first opened in the 1920s with the goal of reaching illiterate people. 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. PIACs have now been established in 86 percent of the country's PTICs (all PTCs except those that lacked adequate physical space).

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS*			CYBERCAFES*			OTHER VENUES		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	5,729	10,017	5,489	1,161	1,111	1,062	1,343	1,273	366	3,225	8,693	3,225	0	398	46
number with ICT	2,261	9,802	5,122	267	349	96	1,155	1,149	257	839	8,507	3,251	0	146	13
% with ICT	39%	98%	87%	23%	31%	20%	86%	90%	100%	26%	98%	100%	NA	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	20%	11%	20%	23%	12%	11%	56%	73%	67%	0%	4%	1%
POP. PER VENUE ('000)	13	8	5	63	93	37	54	205	68	23	52	9	NA	419	103
with ICT ('000)	32	15	6	273	2,093	208	63	242	119	87	62	10	NA	1,354	198

NA=Not applicable

*See the last page for country-specific definitions of these venues. For this country, telecenters are PTICs, and cybercafés are PIACs.

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	55%	28%	57%	35%	50%	26%	65%	24%	ND	26%	ND	24%
	Medium income	45%	54%	32%	46%	50%	56%	35%	45%	ND	56%	ND	45%
	High income	0%	7%	11%	6%	0%	9%	0%	4%	ND	9%	ND	4%
EDUCATION	No formal education	0%	3%	0%	2%	10%	5%	10%	6%	0%	5%	0%	6%
	Only elementary	0%	16%	47%	21%	0%	14%	15%	13%	11%	14%	0%	13%
	Up to high school	100%	50%	35%	36%	90%	37%	75%	32%	59%	37%	47%	32%
	College or university	0%	28%	18%	19%	0%	40%	0%	28%	30%	40%	53%	28%
AGE	14 and under	0%	12%	0%	15%	5%	9%	0%	14%	ND	9%	ND	14%
	15-35	96%	72%	35%	51%	77%	74%	100%	57%	ND	74%	ND	57%
	36-60	4%	12%	65%	23%	18%	12%	0%	8%	ND	12%	ND	8%
	61 and over	0%	2%	0%	2%	0%	0%	0%	1%	ND	0%	ND	1%
GENDER	% female	55%	53%	30%	49%	42%	39%	25%	39%	ND	39%	ND	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

Because PTICs are so widely distributed, they are easily accessible by underserved groups. The venues offer a set of standard training courses that are determined to be of greatest need in the local community. In addition, local communities can request other courses if a minimum number of people register for a class. If necessary, trainers, classrooms, and finances can then be provided. Such requests are often the result of evaluations of what might best meet the needs of the underserved in a particular area. In general, these courses are free. In some cases, voluntary donations are requested, although the donations are not requested in underserved areas or from poor members of the public.

ICT programs are often in demand in PTICs, and in most of these venues, basic IT skill courses are offered. These 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.

In contrast to the widespread rollout of PIACs in Turkey's Public Training Centers, PIACs have been installed in only around 200 of Turkey's public libraries so far. Plans call for the installation of around 2000 PIACs in the country's municipal centers, but there is currently little data available on this relatively new program.

One shortcoming of Turkey's PIAC effort is that there has been no central authority responsible for opening and operating PIACs, and coordination efforts have often been slow and ineffective. Also, after these are established they become the responsibility of local organizations that often lack the skills, manpower, and funds to support and maintain them. Consequently, some are now closed or their use is strictly limited because of concern that maintenance and repairs may become too costly or impossible to arrange.

Other findings from this study include:

- Most individuals in the country have access to the Internet through personal computers or computers that belong to others.
- Public access to ICTs exists mostly through cybercafés. While there is not enough information to provide a complete picture of public use of ICTs at cybercafés, the perception is that these venues provide ICTs for “trivial” use and are places where unemployed people loiter.
- Public access venues are often used only by students for homework and e-mail, and in some cases, chats and Skype are allowed, but the venues are not reaching their full potential.
- Gender discrimination affects the ability of women to access ICTs, and cultural inequities prevent most women and young girls from accessing computers.
- The information needs of traditionally underserved people, especially minorities, are not met, and there are no initiatives to meet these particular needs.
- Mobile telephone coverage is extensive, and a large percentage of the population uses mobile devices.

Recommendations

- Turkey needs a Ministry of IT or ICT in order to better coordinate the efforts related to the eTransformation, modernization of Turkey's public and private sectors. There is also a need to move from implementations involving several organization where there is no clear indication 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 closeness to the users and 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. Without plans for capacity-building and venue maintenance, many of these venues may not be sustainable.
- 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 makes it even more important to gather such information.
- Policymakers and the higher-level public organizations that are sponsoring venues need to know more about what actually is happening at the grass roots level in these venues. This can provide an effective feedback for better and long term planning and for organization of the responsibilities, costs, and sustainability

Geography & Economy

Turkey is located in southwestern Asia, bordered by eight countries and three seas. The climate is temperate and the land is mostly mountainous but arable, with a narrow coastal plain and a central high plateau.

Turkey is governed as a parliamentary democracy and has a strong tradition of secularism. The country moved toward a market-based economy in the 1980s. The economy now shows strong and stable growth with strong foreign investment due to improvements in the banking, retail, and telecommunication sectors. While it has some light industry and tourist income, most of its revenue comes from oil and natural gas production, as well as gold, copper, coal, and other minerals.

The population is approximately 80 percent Turkish and 20 percent Kurdish. Seventy percent of the country is concentrated in cities; the east and southeast are mostly rural. The poverty rate is about 20 percent. The literacy rate is considerably higher for men (95 percent) than women (79 percent). There are also differences in the education, social and economic status between the eastern and western parts of the country.

COUNTRY PROFILE	
Total population* (millions)	73.0
Urban population* (millions)	49.4
Literacy (%)	88
E-readiness	5.6
Gini coefficient	0.5

*World Bank 2006 data

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Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

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Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

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E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Library Internet Centers (LICs): Conventionally the primary source of ICT based information access places; most of the information access limited to research and support for students; have their own funding scheme and are widespread throughout the country

Municipality Internet Centers (MICs): Open to all, but very effective in rural areas

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public Internet Access Centers (PIACs): Government-sponsored Internet centers generally located in Public Training Centers, municipal centers, or public libraries, offering Internet-connected computers plus scanners, printers, training, and other related services. About 4500 of these centers are currently planned.

Public Training Internet Centers (PTICs): Primary aim to serve adults by providing them with skills to improve their quality of lives via new job opportunities and social development programs

Front photo: Inside the library of the Topkapi Palace, built around 1465 AD. Photo courtesy of Sofia Sweetman.



Uganda

PUBLIC ACCESS LANDSCAPE STUDY SUMMARY



Overview

Uganda has the highest needs of any country in this study with regard to improving public access to ICT, and also one of the lowest readiness rankings. It faces significant challenges in this area. The government's current efforts to improve the public access landscape are weak, literacy is low, the general public's familiarity with computers is low, and many of the country's recognized languages still operate with an oral and not written tradition. Also, most of the population lives in rural areas (and rural electrification rates are low), making access a major barrier.

PUBLIC ACCES LANDSCAPE	
Challenges ahead	Significant
Needs	High
Needs (rank)	1/25
Readiness	Low
Readiness (rank)	23/25

Findings

With 48 tribal groups speaking 40 recognized languages, Uganda's diversity represents a challenging (but not altogether unique) case for delivering information equitably, particularly via public access ICT. Many of the country's 40 languages are spoken only with no written tradition, and while English is the official language the literacy rate is low.

Still, an opportunity exists for public access venues with ICTs to address the needs of these diverse groups while preserving their cultural and social values. Current national programs are unified through English and Swahili making it easier to achieve harmony in capacity- building efforts.

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. Public access ICT venues that do exist are poorly documented, and there are no dependable statistics to confirm the condition of these venues nationwide.

Nationwide, the public's capacity to use these centers is low. This is due to a number of factors, including a lack of coordination and collaboration among the venues, low literacy rates, and service offerings which do not match community needs.

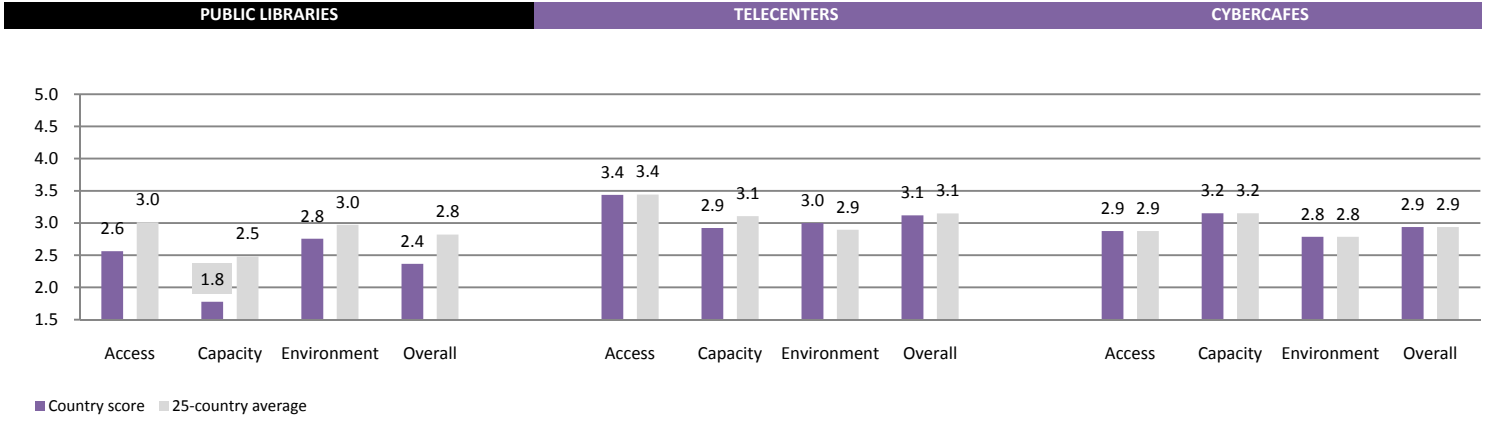
Furthermore, many good policies and efforts in both the public and private sectors have fallen short because of inadequate funds.

Recommendations

Public access ICT centers are useful, but the most successful ones have services that meet community needs, and are built and operated in partnership with multiple stakeholders. They focus on a key customer base, make strategic community outreach efforts, and have good management. Also, centers that have both ICT and radio broadcast components perform far better in Uganda than those with only Internet.

More research is needed to understand the actual numbers of public access venues in this country, and it is equally

ACE Scores



Shaded data points are outside standard deviation for 25-country set
 See the last page for country-specific definitions of these venues
 See the last page for a definition of the ACE scoring framework

Venue Distributions

	ALL PUBLIC ACCESS			PUBLIC LIBRARIES			TELECENTERS			CYBERCAFES			OTHER VENUES*		
	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median	Total urban & non-urban	25-country average	25-country median
VENUES	25,610	10,017	5,489	30	1,111	1,062	144	1,273	366	25,400	8,693	3,225	36	398	46
number with ICT	ND	9,802	5,122	3	349	96	144	1,149	257	ND	8,507	3,251	5	146	13
% with ICT	ND	98%	87%	10%	31%	20%	100%	90%	100%	ND	98%	100%	15%	37%	92%
% OF PUBLIC VENUES	100%	100%	100%	14%	11%	20%	69%	12%	11%	ND	73%	67%	17%	4%	1%
POP. PER VENUE ('000)	1	8	5	997	93	37	208	205	68	1	52	9	831	419	103
with ICT ('000)	ND	15	6	9,967	2,093	208	208	242	119	ND	62	10	5,537	1,354	198

ND=Not data

*See the last page for country-specific definitions of these venues. For this country, other venues refers to community libraries.

Data points are missing for some measures in some countries, which can result in oddities when comparing rows of data (for instance, the average number of venues with ICT appears to be greater than the average number of venues). For a complete overview of comparative country data, please see the summary paper for this study.

User Profiles

		PUBLIC LIBRARIES				TELECENTERS				CYBERCAFES			
		Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average	Urban	25-country average	Non-urban	25-country average
INCOME	Low income	47%	28%	ND	35%	11%	26%	57%	24%	ND	26%	ND	24%
	Medium income	45%	54%	ND	46%	16%	56%	27%	45%	ND	56%	ND	45%
	High income	8%	7%	ND	6%	3%	9%	13%	4%	ND	9%	ND	4%
EDUCATION	No formal education	3%	3%	ND	2%	3%	5%	0%	6%	ND	5%	ND	6%
	Only elementary	23%	16%	ND	21%	3%	14%	27%	13%	ND	14%	ND	13%
	Up to high school	46%	50%	ND	36%	26%	37%	26%	32%	ND	37%	ND	32%
	College or university	28%	28%	ND	19%	26%	40%	47%	28%	ND	40%	ND	28%
AGE	14 and under	12%	12%	ND	15%	0%	9%	5%	14%	ND	9%	ND	14%
	15-35	62%	72%	ND	51%	45%	74%	62%	57%	ND	74%	ND	57%
	36-60	24%	12%	ND	23%	12%	12%	30%	8%	ND	12%	ND	8%
	61 and over	2%	2%	ND	2%	0%	0%	0%	1%	ND	0%	ND	1%
GENDER	% female	29%	53%	ND	49%	22%	39%	ND	39%	ND	39%	ND	39%

ND=No data

Percentages may not add up to 100% in all cases

See the last page for country-specific definitions of these venues

Data collected through interviews conducted by research teams. See country reports for details with regard to methodology, locations, timing, and data collection issues.

important to conduct studies in content development and management areas.

The following specific initiatives are needed:

- Provide effective public awareness campaigns and capacity-building initiatives.
- Revisit the national ICT policy and the National Libraries Act to ensure that issues of e-services, e-content, and public venue and ICT access and use are strongly addressed.
- Support a public access survey that covers all five of Uganda's main public access ICT venues (public libraries, community libraries, telecenters, cybercafés, and post offices) to strengthen the content and service development and distribution processes.
- Establish a functional and nationally-coordinated venue network with the power to increase the number of public access venues and improve the quality of services offered. This effort should be coupled with partnerships, networking, and collaboration among the venues, key non-government organizations (NGOs), and civil society organizations.
- Encourage and support continuous training for librarians and other information management professionals, taking advantage of diverse new modalities such as e-learning, online communities, and e-forums without neglecting face-to-face meetings and workshops.
- Support infrastructure development efforts, especially rural electrification, optical fiber installation, and public libraries in rural and remote communities. There is a need to step-up the rural electrification program and 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 new libraries in the ever-increasing new districts.
- Digitize government services and key NGO services that will help in strategic development and the delivery of e-services to disadvantaged groups. This will promote ICT-based content and service availability.
- Support local organizations and NGOs in developing local content.
- Establish wireless networks at public access centers to improve the physical presence of the centers within the communities they serve.
- Establish a community radio presence at each public library in each district.
- Implement the decentralization policy aimed at extending services nearer to the underserved. The government should ensure that its funds remitted through the National Library of Uganda are allocated as a priority to fund libraries.

Geography & Economy

Uganda is a landlocked nation in central equatorial Africa with a landscape that ranges from tropical rainforest to mountains reaching over 16,000 feet. One-third of the country is covered by lakes; Lake Victoria (the world's largest tropical lake and source of the Nile) by itself covers 20 percent of the country.

For many years Uganda has experienced political, social, and economic turmoil. The area was a British colony from 1894 until gaining its independence in 1962. Since its independence the country has experienced violent conflicts and government shifts marked most prominently by the horrific reign of Idi Amin who was ousted in 1980. Throughout its 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 killed untold numbers of people.

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. Coffee is the country's primary export.

COUNTRY PROFILE	
Total population* (millions)	29.9
Urban population* (millions)	3.8
Literacy (%)**	67
E-readiness	ND
Gini coefficient	0.43

*World Bank 2006 data

**CIA Factbook

ND=No data

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About this study

CIS's Public Access Landscape Study examined how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs).

This study covered a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS collected, interpreted, and analyzed these detailed county-level results, and also conducted cross-country comparative analyses to uncover common themes, challenges and opportunities.

The goal of this work is to help strengthen public access to information and ICTs around the world.

This project was conducted in two phases. During the first phase, country-based research teams prepared draft reports describing the information access landscape, presented a national assessment, and compiled a preliminary set of recommendations. In the second phase, teams identified the principal locations where people seek information: public libraries, cybercafés, telecenters, and other locations (such as private and religious libraries).

Local research teams 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; and (3) perform secondary research and analysis of existing reports and documents using both local and international sources. Teams 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, teams examined the effects of environmental factors such as government policies, geography, and ethnic and linguistic differences.

Definitions

ACE scoring framework: Developed by CIS based on a modified bridges.org Real Access framework. The scale goes from zero to five, with 5 being the best possible score. ACE scores are calculated by evaluating dozens of variables having to do with ICT access, capacity and environment in public access ICT venues. "Access" includes variables such as accessibility, suitability, affordability, and the availability of technology; "capacity" includes training, relevant content and services, social appropriation, and collaboration capacity; and "environment" includes socio-cultural factors, popular support, political will, and a country's legal and regulatory framework.

Challenges ahead (from table on front page): Estimates based on combinations of ACE scores indicating difficulty in improving country's public access to ICT. From the fewest challenges to most, categories are: quick wins, steady gains, slow gains, and significant.

CIS: University of Washington Center for Information & Society (CIS)

Community libraries: Created by and for a local population and usually not supported with government funds; may be organized by a school, church or community group, but service the needs of the community at-large

E-readiness: The ability to use ICT for economic development, as determined by measures of connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. E-readiness is scored on a scale from 1 to 10. In 2008, the global e-readiness score was 6.4, with the highest levels in North America and the lowest in Africa and Asia.

Gini coefficient: Measures the inequality of income distribution. A low coefficient indicates more equal income distribution, while a high Gini coefficient indicates more unequal distribution. The global average is around 0.6; the US Gini is around 0.45.

ICTs: Information and communication technologies (especially computers and the Internet)

Needs & Readiness indexes (from table on front page): The needs index is comprised of three indicators: inequality, ICT usage and ICT cost. The readiness index is also comprised of three indicators: politics, skills and ICT infrastructure. Proxies are used for all indicators. See "Information Needs & Watering Holes" on the CIS Landscape Study website (www.cis.washington.edu/landscape) for a more detailed discussion of these indexes and proxies.

NGO: Non-governmental organization

Non-urban: Commonly labeled a rural area, but definitions of rural or periurban vary by country

Public libraries: Open for all, but accessibility is not for all. The nature of content and services unintentionally targets educated members of the community.

Telecenters: Public access points mostly located in rural or semi urban areas; provide public access to ICT. Most offer internet services, photocopying, telephony, printer, photocopier and IT applications training, however, many have recently innovated to include community outreach programs in livelihood issues.

Front photo: Kampala Road in Kampala, Uganda. Photo from Wikipedia (no source).

CENTER FOR INFORMATION & SOCIETY

The Center for Information & Society (CIS) at the University of Washington studies the design, use and impact of information and communication technologies (ICTs) on individuals and communities around the world, with a particular focus on disadvantaged and underrepresented populations. CIS is a leader in the global network of ICT researchers, drawing on contributions from a wide variety of disciplines. Our goal is to produce work that empowers decisionmakers at all levels to improve lives by developing and deploying more effective, sustainable, and accessible ICT products, programs and services. For more information, please visit our website at www.cis.washington.edu.

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Ricardo Gomez is an assistant professor at the University of Washington's Information School. Dr. Gomez specializes in the social impacts of communication technologies, especially in community development settings. He is also interested in qualitative research methods, and in group facilitation and process design, and seeks creative ways to communicate complex ideas and research results in everyday language. Dr. Gomez has worked with private, public and non-profit sectors around the world, with a particular focus on Latin America and the Caribbean. Before joining the University of Washington he worked with Microsoft Community Affairs, and with the International Development Research Center in Canada. He holds an MA from Université du Québec à Montréal (1992) and a Ph.D. from Cornell University (1997).

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ABSTRACT

CIS's Public Access Landscape Study examines how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs). This study covers a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country. CIS is collecting, interpreting, and analyzing these detailed county-level results, and is also conducting cross-country comparative analyses to uncover common themes, challenges and opportunities. The goal of this work is to help strengthen public access to information and ICTs around the world.

KEYWORDS

Public access, ICT, information, communication, technology, developing, countries, global, libraries, telecenters, cybercafes, landscape, study, CIS, UW

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COVER PHOTO

Courtesy of PACT Mongolia

CIS's Public Access Landscape Study examines how people around the world access and use information and computers in public settings such as libraries, telecenters, and cybercafes. Understanding public access is particularly important in developing countries where there is often limited private access to information and communication technologies (ICTs). This study covers a carefully-selected sample of 25 developing countries containing over 250,000 public access settings. Local research teams surveyed over 25,000 people and conducted interviews and focus groups in order to develop a detailed picture of the public access ICT landscape in each country .

OTHER RECENT CIS OUTPUTS FROM THE LANDSCAPE STUDY

Libraries, Telecenters and Cybercafes: An International Study of Public Access Information Venues (August 2008)

Who Uses Public Access to ICT?: Age, Education, Gender and Income Differences in Users of Public Access to ICT in 25 Countries (May 2009)

And several other papers currently underway

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WORKING PAPER 2: ICT Training and Employability: Integrated Service Delivery in Workforce Development Networks (June 2007)

This study investigates how Community Based Organizations (CBOs) that provide basic information and communication technology (ICT) training integrate this training with other services and utilize a network of service providers to improve employability prospects for lower wage, lower skill populations in the United States.

WORKING PAPER 4: Researching the Links between ICT & Employability: An Analytical Framework (April 2009)

This article proposes an analytical framework to better understand the role of ICT skills in improving employment opportunities for low-income groups. The research draws upon the experiences of seventy NGOs that provide ICT training programs and other employment services in 23 countries around the world.

WORKING PAPERS 5 & 6: Literature Review on Public Access to ICT (April 2009)

ICTs are widely acknowledged as important resources for socio-economic development. Due to resource constraints, shared access forms the dominant mode of access to these technologies in most developing countries. Governments, non-governmental institutions and business entrepreneurs have invested significant amounts of human and financial resources in public libraries, telecenters, internet cafés and other forms of public access, without clear evidence on what the ultimate outcomes will be and the actual costs. This report presents a review of empirical research on the impacts of public access to ICTs in order to document what is known about this approach to ICT service delivery.

Structure and Flexibility in Global Research Design: Methodological Choices in Landscape Study of Public Access in 25 Countries

CIS Working Paper No. 8

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With contributions from CIS team

This is a work in progress and the authors appreciate your comments.
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This publication is available online at www.cis.washington.edu/landscape

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Structure and Flexibility in Global Research Design: Methodological Choices in Landscape Study of Public Access in 25 Countries

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With contributions from CIS team

CIS Working Paper no. 8 - Fall 2009

ABSTRACT

This paper presents the research methodology for the global study “Landscape of Public Access to ICT in 25 Countries” (referred to as the Landscape Study), a study conducted in 2007-2009 by the University of Washington’s Center for Information & Society, with a grant from the Bill & Melinda Gates Foundation. The study looked at public access venues (public libraries, telecentres, cybercafés, other) that offer public access to information, especially through information and communication technologies (ICT), in 25 countries around the world. We describe here the criteria for the country selection, selection of local research partners in each country, research design considerations, data analysis, and limitations of the study.

Keywords: ICT, public access, public libraries, telecentres, cybercafés, Landscape Study

Introduction

This paper presents the research methodology for the global study “Landscape of Public Access to ICT in 25 Countries” (referred to as the Landscape Study), a study conducted in 2007-2009 by the University of Washington’s Center for Information & Society, with a grant from the Bill & Melinda Gates Foundation. While other papers describe findings and lessons, we limit this one to a detailed description of the methodological choices, research design and sampling rationale developed for this research.

The study looked at public access venues – public libraries, telecentres, cybercafés, other—venues that offer public access to information, especially through information and communication technologies (ICT), in 25 countries around the world. We describe here the criteria for the country selection, selection of local research partners in each country, research design considerations, data analysis, and 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” 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, as described in the following figure:

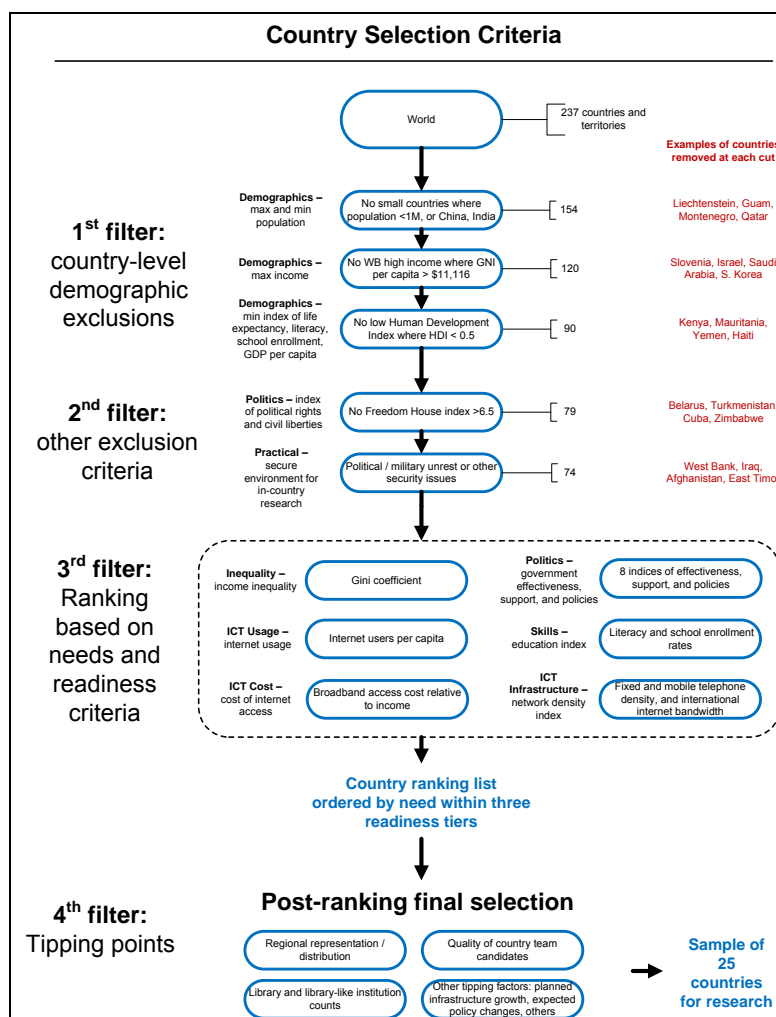


Figure 1: Country Selection Criteria

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).

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 limited freedom of expression (Freedom House¹ index over 6.5).
- Remove countries with political unrest or security issues (US Department of State travel advisories).

¹ <http://www.freedomhouse.org>

The third filter used publicly available data to rank countries according to needs and readiness criteria. This 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 Program.

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).

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).

- 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), Transparency International (2007), World Bank Worldwide Governance Indicators (2006).

Skills: Adult literacy and school enrollment was employed as a proxy indicator 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).

ICT infrastructure: Fixed phone density, mobile phone density and international Internet bandwidth was used as a proxy indicator 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).

- 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 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 resulted in 8 countries from 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.

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

Figure 2: Needs and Readiness Ranking

The fourth and last filter in the country selection process to bring the sample size from 30 to 25 countries (figure above) was based on tipping points such as regional representation, quality 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 to help understand commonalities and differences between the countries studied and in relation to other countries not included in the sample.

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, given the exploratory, 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, widely distributed through specialized mailing lists and web sites. This 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 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, reference, 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, Kuala Lumpur) 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. Nonetheless, the tight timeline to conduct country studies (roughly 9 months in most cases), and the need to prepare all country reports in English (as opposed to local language reports) might have been factors that hindered the quality of the in-country research results.

Research Design

Research Question

The study was designed following an integrated, iterative approach that builds on the collective strengths of the research teams and on emerging lessons from the research process. 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 this 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, 2009; Whyte, 2000) and chose one of them, the Real Access framework, as a starting point. The Real Access framework was developed by Bridges.org in South Africa in 2005, as a framework to understand 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; Colle & Roman, 2001; Dagrón, 2001; Delgadillo et al., 2002; Etta & Parvyn-Wamahu, 2003; Gomez & Ospina, 2001; Gomez & Reilly, 2002; 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 make sure 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 (Denzin & Lincoln, 2005; Lincoln, 1995; 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 (Walsham, 1995; Schwandt, 1998; Denzin & Lincoln, 2005).

The original Real Access framework by Bridges.org suggests twelve themes to analyze ICT use². 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 notion 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 technologies³, and international policy and regulatory framework), making the research framework more complete and robust.

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), and present it elsewhere in greater detail as a contribution for the research community.

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.⁴

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

Public Library A **public library** is a library which is accessible by the public and is generally funded from public sources (such as tax monies) and may be operated by civil servants. Taxing bodies for public libraries may be at the municipal, district covering several municipalities, county, state, or federal level. Public libraries exist in most nations of the world and are often considered an essential part

² 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.

³ The label “Social Appropriation” is derived from the Spanish concept of *apropiación*, which implies taking ownership and transforming the use 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.

⁴ 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>.

of having an educated and literate population. Public libraries are distinct from research libraries, school libraries, or other special libraries in that their mandate is to serve the public's information needs generally (rather than serve a particular school, institution, or research population). Public libraries typically are lending libraries, allowing users to take books and other materials off the premises; they also have non-circulating reference collections. Public libraries typically focus on popular materials such as popular fiction and movies, as well as educational and nonfiction materials of interest to the general public; Internet access is also often offered. (based on Wikipedia.org)

Cybercafé An **internet café** or **cybercafé** is a place where one can use a computer with Internet access, most for a fee, usually per hour or minute; sometimes one can have unmetered access with a pass for a day or month, etc. It may serve as a regular café as well, with food and drinks being served. Internet cafés are located world-wide, and many people use them when traveling to access webmail and instant messaging services to keep in touch with family and friends. Apart from travelers, in many developing countries Internet cafés are the primary form of Internet access for citizens as a shared-access model is more affordable than personal ownership of equipment. (based on Wikipedia.org)

Telecentre A **telecentre** is a public place where people can access computers, the Internet, and other digital technologies that enable people to gather information, create, learn, and communicate with others while they develop essential 21st-century digital skills. While each telecentre is different, their common focus is on the use of digital technologies to support community, economic, educational, and social development—reducing isolation, bridging the digital divide, promoting health issues, creating economic opportunities, and reaching out to youth for example. Telecentres exist in almost every country, although they sometimes go by different names (e.g., village knowledge centers, infocenters, community technology centers (CTCs), community multimedia centers (CMCs) (based on Wikipedia.org)

Some countries adapted the definitions to fit the particular situation of their country (for example, Cabinas Publicas in Peru are considered cybercafés, as are Warintek and Warmasif in Indonesia; but telecentres are called NGO Information Service Centers in Algeria, and Community Technology Centers in Dominican Republic). The exact contextualized definition, when one was suggested, is included in each detailed country report. In 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”), 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 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 and 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 other 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; its analysis is not included in this paper.

Data Collection

We designed common elements for background and fieldwork research in each country, to be conducted by local research teams following the American Evaluation Society's commonly accepted research standards⁵ and research principles⁶. Each local team was to conduct original research with a combination of methods for data collection and analysis. In each country the research did the following:

- Document review – identify and review salient literature (published or unpublished) in each country in relation to the project's area of focus. Total documents reviewed: 30-50 per country.
- Expert Interviews – identify at least ten specialists in the areas of interest of the project and hold in-depth interviews with them. Total expert interviews: 10-15 per country.
- Site visits – identify, visit and observe six or more venues of each type of venue studied (library, telecentre, cybercafé, other) for a half day, with special attention to include both urban and non-urban sites (ideally three of each). Sampling rationale: seek typical case samples of each type of venue, including both urban and non-urban sites. Total site visits: 18-22 per country, total 450-550 sites visited.
- User Surveys – collect user information from sites visited using a survey instrument template (some set questions provided, with opportunity to add other questions in each country). Sample rationale: based on same sample of sites visited, survey every second or third user exiting the venue, target 40-50 users in each venue. Total users surveyed: 720-1100 per country. Note that the user surveys are not intended to provide statistically significant sample of the population or of the venues studied.

⁵ 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)

⁶ 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

- Operator Interviews: identify at least one operator in each site visited and hold a structured interview for more in-depth understanding of the venue, users and environment. Total operators interviewed: 18-22 per country.
- Additional optional data gathering: focus groups with users, operators or experts; additional visits and interviews; peer consultation and review.

Based on these multiple methods of data collection, each local team prepared an interim report (for Phase 1) and a final, detailed country report (after Phase 2) with all the key findings and interpretation 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. All these documents are publicly available for consultation and reference⁷, including a summary of all findings in an easy to read format (Gomez, 2009).

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, they 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 telecentres is more disperse among international agencies and local non-profit 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, telecentres, tends to be an informed estimate, sometimes the result of “educated guesses” on the part of the 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 corroborated 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 elsewhere). This 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

⁷ The project has maintained a public web site with all reports and publications at www.cis.washington.edu/landscape.

variable, they are based on locally-informed estimates and analysis which, when combined across all 25 countries, represents a meaningful source of trends and patterns.

For the purposes of this study, we use the country reports prepared by the local researchers as the primary source of data for our analysis. Each country report was prepared using a common template (template is available on the project website, www.cis.washington.edu/landscape). Each one of the country reports include an extended summary, a section with methodological details (venue selection, inequity variables, data gathering techniques, research trustworthiness and credibility), a country assessment, venue-specific assessments (public libraries, telecentres, cybercafés, and other venues, with each one following the ACE framework), success factors and recommendations, and appendices.

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 CIS 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 allowed for various triangulation options, multiple data sources, multiple methods, multiple perspectives and multiple investigators, all of which add to the validity and confidence of the findings (Patton, 2002).

Based on these common 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 UW 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 II. Phase II 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, Clark, Gutmann, & Hanson, 2002)

Data Analysis

With the massive volume of qualitative data gathered from all 25 countries in both Phase 1 and Phase 2, 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). We explored the use of qualitative analysis software (Atlas TI) but abandoned it due to software limitations to handle the volume and different sources of data and the collaborative nature of the research team. We chose a more traditional approach to coding the data, finding patterns, labeling themes and developing category systems as

part of the analysis (Patton, 2002). For this we developed a detailed coding grid based on the ACE framework, in which we coded each dimension of Access, Capacity and Environment for each type of public access venue in each country, using a scale of one to five, where one is lowest and five is highest. The chart with the coding variables and definitions is presented in the next figure:

Coding Variables, ACE Framework	<i>Definition of variable</i>
1. ACCESS	
1.1 Physical Access to venue	
Location of venue	<i>How easy is it to go to the venue? Is it centrally located? Connected by public transport/convenient to get to?</i>
Venue distribution (urban/non-urban)	<i>Is there an equitable distribution of venues between urban and non-urban areas?</i>
Basic infrastructure (space)	<i>Is venue space sufficient to offer the necessary services?</i>
Hours of operation	<i>Are the hours of operation of the venue convenient for the users? Or does it preclude certain users from accessing the venue?</i>
1.2 Suitability of venue	
Universal access (differences between venues serving rich and poor)	<i>By its very nature, does the venue appear more suited for the general population or does it cater specifically to the rich or poor?</i>
Venue meets local needs and conditions	<i>Does the venue meet basic local information needs and services?</i>
Physical safety of venue, people, and materials	<i>Do people feel safe at the venue? Are materials, including hardware, ever stolen?</i>
Venue as a place people want to go	<i>Is the venue welcoming? Do people perceive the venue as a place they want to go?</i>
1.3 Affordability of venue	
Cost in relation to daily needs	<i>Given the average income, etc. of the people, is the cost of using the venue proportionately affordable?</i>
Financial Sustainability of venue	<i>Does the venue have sufficient funds (beyond ICT charges) for long term sustainability?</i>
Sustainability for ICT	<i>Does the venue have sufficient funds for continued ICT service?</i>
Competent services (including ICTs)	<i>Does the venue offer basic services to meet information needs that function well?</i>
1.4 Technology access	
1.4.1 Infrastructure	
Availability of technology (hardware, software, telecommunications networks, internet services)	<i>What technology is available to meet local needs?</i>
Basic infrastructure (electricity)	<i>Is there sufficient electricity/alternate power source for the venue to continuously function?</i>
Appropriateness of technology	<i>Is the available technology suitable to meet local needs?</i>
Physical access to technology	<i>Are the technology resources within the venue easy to access?</i>
1.4.2 Affordability of technology & technology use	
Cost in relation to daily needs	<i>Is the comparative cost of using ICT high or low for a majority of the population?</i>
Financial Sustainability of technology	<i>Is the available technology sustainable financially, or does the high cost jeopardize its future use?</i>
2. CAPACITY	
2.1 Human capacity and training	
2.1.1 Staff	
Level of librarian/operator training (libraries only)	<i>Is the staff trained formally (e.g. with degree in library sciences)?</i>
Digital literacy	<i>The ability to use digital technology, communication tools, or networks to locate, evaluate, use and create information</i>
Operators' attitude to support information needs	<i>Is the venue operator willing to help users find what they need?</i>
2.1.2 Users	
Perception of venue	<i>How is the venue perceived by its users?</i>
Venue offers training in skills to use services (libraries only)	<i>Does the venue offer training to meet information needs?</i>
Venue offers ICT training	<i>What level of ICT training is offered to users?</i>
Digital literacy of users (independent of training in venues)	<i>The ability to use digital technology, communication tools, or networks to locate, evaluate, use and create information</i>
Programs for underserved populations	<i>Are there any special programs/trainings/facilities for populations that are traditionally underserved?</i>
Trust in the venue	<i>Do people trust the information gathered from the venue?</i>
2.2 Meeting local needs: relevant content and services	
2.2.1 Local needs	
Local needs are met (resources, skills, & operator capacity)	<i>Does the venue meet local needs in terms of resources available, skills and staff capacity?</i>
Locally relevant content (meeting local needs)	<i>Is the content offered locally relevant?</i>
Produced in local languages	<i>Is content produced in local languages available in the venue?</i>
2.2.2 Local services	
Sharing between venues	<i>Do different venues collaborate with each other on resources, training, etc. (libraries, cybercafes and telecentres)?</i>
Sharing between venues	<i>Do different venues collaborate with each other?</i>
Urban/non-urban distribution	<i>What is the distribution of venues and services offered in terms of urban/non-urban locations?</i>

2.3 Social appropriation	
2.3.1 Venues	
Space for collaboration	<i>Does the venue itself encourage or discourage collaboration among patrons?</i>
Integration into culture	<i>How easy or difficult is it for people to integrate these venues into their daily lives?</i>
Adapt venue to suit local needs (including ICTs)	<i>Is the venue able to adapt to local needs?</i>
2.3.2 Technology in venue	
Space for collaboration	<i>Does the technology provided in the venue encourage or discourage collaboration among its patrons?</i>
Integration into culture	<i>Is the venue easily integrated into the daily culture of the people. Eg. Is looking up information in the venue a usual part of people's information culture?</i>
3. ENVIRONMENT	
3.1 Socio-cultural factors	<i>gender, age, education, income, social status, caste, ethnicity, religion)</i>
Gender discrimination	<i>Are there biases against anyone in this category?</i>
Age discrimination	<i>Are there biases against anyone in this category?</i>
Education discrimination	<i>Are there biases against anyone in this category?</i>
Religion discrimination	<i>Are there biases against anyone in this category?</i>
Socioeconomic discrimination	<i>Are there biases against anyone in this category?</i>
Ethnicity discrimination	<i>Are there biases against anyone in this category?</i>
3.2 Political will, legal and regulatory framework	
National and regional economic policies support of venues	<i>Are there any current policies at the national or regional level that support the venues?</i>
Political will for venues	<i>Is there support among policy makers for the venue?</i>
Long term government strategies to support the venue	<i>Does the government prioritize the sustained existence of the venue?</i>
Coordination of national and local policies	<i>Is there coordination between national and local policies that support the venue?</i>
International policies to support venue networks	<i>Do international policies support the venue and/or networks of venues (financially or otherwise)?</i>
Use/censorship of materials (including ICT) in venues	<i>Are there any explicit censorship rules that prohibit use of certain materials/services (excluding the social and popular norms that govern information behavior)?</i>
Legal and regulatory framework particular to ICT	<i>Do government policies explicitly support the use/provision of ICTs?</i>
3.3 Popular support	
Popular support to improve venues (including ICT)	<i>Do the venues (including the ICT they provide) enjoy popular support?</i>
Involved stakeholders including NGOs, civil society, community organizations, etc.)	<i>Are there any other stakeholders such as NGOs, civil society organizations, etc. that are involved with the venues?</i>
Champion for the cause	<i>Is there a particular champion for the cause of any of the venues? E.g. first lady in Egypt is a champion of libraries</i>

Figure 3: Coding Variables used in data analysis

All the coding was 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 double-blind coding was done for several venues and/or several countries to look for salient discrepancies. Very few were found and in only one case an assigned code was changed following the verification. This highlights the utility of the coding as a tool to seek patterns, themes, regularities or divergences. Furthermore, the systematic coding allowed us to work with “what if” scenarios, as well as offer an analytical tool that can assign different weights to different measures, an important feature of the Integrated, Iterative Approach in measuring digital divide/s (Barzilai-Nahon, Gomez, & Ambikar, 2009).

In addition to detailed data coding, we conducted SWOT analysis (strengths, weaknesses, opportunities, threats) on parts of the data, we facilitated several analytical workshops on particular themes emerging in the data, and we held numerous research conversations, discussion groups and team debriefings, to illuminate the findings and assist the interpretation of the rich data gathered in this study. In a nutshell, we dedicated over a year of the 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, in addition to teaching and learning opportunities for graduate students at the University. This paper 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, breadth comes at a price: this study does not provide an in-depth analysis of a particular venue, country or experience, and 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 timeline 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.

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