

Information needs and watering holes: public access to information and ICT in 25 countries

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This paper is based on a comparative study that maps the landscape of venues that provide public access to information and communication technologies (ICT) in 25 countries. We study key venues providing public access to information to understand how diverse populations can and do access and use ICT to improve their lives along with factors influencing the availability and use of ICT.

In partnership with local research partner teams we engage in comparative analysis focusing on factors such as physical access to technology, affordability of the technology, human capacity and training available for the use this technology, socio-cultural factors, local economic and political environment, and the legal and regulatory framework of each country.

Our study is unique in that we focus on two categories of venues – ones where information is a core function, such as libraries, whether or not they provide public access to ICT; and other venues that provide public access to ICT but where information does not form the core function, e.g. telecentres, cybercafés. Through such comparative analysis we aim to arrive at a detailed landscape of the ICT in these 25 countries, as well as at recommendations to strengthen institutions that provide public access to ICT.

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Introduction

The use of information and communication technology (ICT) in the aid of development has become increasingly important in the past two decades. As the access and use of various information gained through these ICTs has increased, it has allowed people to participate at various levels in developmental efforts. As societies shift into what is referred to as 'knowledge societies' (Reich 1991; Castells 1996) access to information becomes an important factor in any individual's ability to accrue the benefits of ICT. Access to and the use of ICT has been referred to as '*the indispensable grammar of modern life*' (In Selwyn, 2003). The increased importance of ICT in development raised concerns about the digital divide, referring to the gap between those with access to these technologies and the benefits accrued through the use of ICT. Early interventions to lessen the digital divide focused on providing public access to ICT, often at reduced costs or free. Today, community telecentres exist in one form or another in most countries around the world (Mark *et al.* 1997; Alkalimat and Williams 2001). Scholars studying the digital divide have, however, criticized this access-focused approach and more recent debates around issues of the digital divide have focused various socio-economic and cultural factors such as race, class, gender, education, geography etc. as contributing to varying levels of access to ICT and their benefit. (DiMaggio, 2004; Hargittai, 2003; Warschauer, 2003). Our paper focuses on these socio-economic factors in exploring the opportunities and barriers that they present in the increase of public access to ICT.

This paper is based on an 18-month study that explores the public access landscape in our sample of 25 countries. We focus on venues providing public access to ICT and factors that influence access and use of ICT at these venues. In this paper we consider mainly three kinds of venues – public libraries, telecentres, and cybercafés in order to understand the opportunities and barriers that influence the use of ICT. At the end of our study, scheduled to finish in December 2008, we aim to arrive at policy recommendations to improve public access to ICT. At the time of the writing of this paper, field research in Phase II of the study is currently underway. Nonetheless, the preliminary findings we present here that provide useful insight into the landscape of public access.

Our study is unique in that while earlier studies have explored either public libraries or telecentres or cybercafés singly (Gomez and Reilly, 2001; Whyte and Whyte, 2000; Selwyn, 2002; Hull, 2003); we present a comparative view of these three kinds of venue and enter a brief discussion about our research approach to this study.

To briefly outline this paper, we first explain the process of country selection for our study followed by a brief discussion on the methodological choices. Here we introduce the Integrated Iterative Approach (IIA) which allowed for a collaborative research design informed by our research partners in 25 countries to emerge. Next we take each of the three kinds of venues in turn – public libraries, telecentres and cybercafés to understand the factors influencing their use and arrive at some important insights and observations which will allow us to develop policy recommendations for improving public access to ICT at the end of this study.

Sample Selection

Our target sample for this study included countries that formed the lower-to middle economic scale globally. The logic, behind such a choice, was a wish to eliminate from the sample countries at either extreme - countries that were at the top of the global economic scale where private access and use of ICT would possibly render public access less valuable; or countries that were very low on the global economic scale. To arrive at our sample size of 25 countries, we first used the gross national per capita income, the Human Development Index as well as the population of countries (above 1 million and below 1 billion) to narrow down our choices to 70 countries. We then considered factors such as freedom of press, physical security of researchers, low rating from the Freedom House Index, to arrive at 54 countries in which independent research could be conducted. The next stage of sample selection involved the

creation of two indices that indicated the ICT **needs and readiness** of each country to select a further 30 countries.

The needs index was created using three indicators – inequality, ICT usage and ICT cost. We developed proxy indicators for each of these three factors. To gauge **inequality** we used income inequality¹ as a proxy to represent geographic, ethnic, gender inequalities. Inequality in these cases suggested greater potential need for public access to ICT. We used internet users per capita² to represent **ICT usage**. In this case, lower use of internet indicated a greater need for public access venues. **ICT cost** was represented by understanding the lowest broadband cost as a percentage of monthly income³. The higher cost of broadband suggested a greater need for public access.

The readiness index rested on three factors as well – politics, skills and ICT infrastructure. We used secondary data to gather information about government policies prioritizing ICT (both present and future) to represent **politics** in this index. Greater government and regulatory support for ICT indicated a higher level of **ICT readiness**. The skills factor considered literacy (where school enrollment⁴ was used as a proxy indicator). Higher literacy levels presumably indicate a higher readiness level for **ICT usage**. To measure ICT infrastructure we used the density of phones, mobiles and internet bandwidth⁵ as a proxy indicator. The final selection of 25 countries was based on four additional criteria – regional representation, number of public libraries per country, availability of qualified local research partners and tipping factors such as movements to increase public access, known plans for future infrastructure development. Based on the needs and readiness indices, we arrived at the following sample of 25 countries –

<i>Needs & Readiness</i>		<i>Needs</i>	
		<i>Higher and Medium</i>	<i>Lower</i>
<i>Readiness</i>	<i>Medium Higher and</i>	<i>Algeria</i>	<i>Argentina</i>
		<i>Brazil</i>	<i>Costa Rica</i>
		<i>Colombia</i>	<i>Egypt</i>
		<i>Dominican Republic</i>	<i>Malaysia</i>
	<i>Lower</i>	<i>Bangladesh</i>	<i>Indonesia</i>
		<i>Ecuador</i>	<i>Kyrgyzstan</i>
<i>Honduras</i>			

Fig 1. Needs and Readiness Indices of public access to ICT

To create this chart, we assigned scores of high, medium or low to each country based on our needs and readiness criteria. This chart aggregates the needs and readiness scores for each country. These indices are based on publicly available expert data and are not informed by our field research. These indices provided us with composite criteria for selection of countries, and an early insight into what the areas offering

1 Gini index (2006) from United Nations Development Program.

2 Data from CIA World Factbook (2007).

3 Data from International Telecommunications Union's World Information Society Report (2006).

4 International Telecommunication Union opportunity skills index (2007).

5 International Telecommunication Union opportunity network index (2007).

opportunities for improvement of public access to ICT are. They also provide a useful point of comparison with the results of the comparative analysis at the end of this study.

Integrated Iterative Approach (IIA)

This research study was designed as a participatory process. We committed to approaching the process of research design and implementation in multiple steps, with input from multiple stakeholders to ensure that all key categories and dimensions of analysis were addressed and to make sure that the most meaningful questions were asked in the most meaningful way during the research. Our aim, through this process has been to arrive at findings that are useful, credible, dependable and trustworthy. (Denzin & Lincoln, 2005; Lincoln, 1995; Villiers, 2005). We formalized our approach to research in the Integrated Iterative Approach (IIA). The IIA emphasizes a multi-disciplinary approach to any research study and presents two important guidelines to ensure that the research is meaningful and useful – (1) An integrated approach where each stakeholder is represented and (2) An iterative process of research design, implementation and analysis that regularly revisits the research questions, findings and other insights to identify trends and patterns as they emerge in the research process.

The selection of our sample countries embodied the first iterative step in this research as we utilized several criteria to arrive at our sample of 25 countries. Our next step was to recruit expert local research partners in all our sample countries and to undertake a series of research planning workshops. The Real Access/ Real Impact (RA/RI) framework was chosen as a starting point for the research design during these workshops. Developed by Bridges.org in South Africa, this framework proposes a list of twelve social, economic, political, educational, cultural and environmental factors that influence public access.

While the RA/RI framework provided a large list of factors influencing access and use of ICT, we critiqued the static nature of this list. The IIA emphasizes a dynamic approach to measuring these factors – examining historical factors as well as future implications of public access to ICT. Another important point of consideration was also the uni-directional approach to information and communication within the RA/RI framework. In our study, we wished to examine not only what was provided by different venues in terms of ICT, but also the use and appropriation of technologies by the people which reflected their particular information and communication needs. With an intention of mapping unintended uses of technology, we added the category of social appropriation of technology to our list of factors influencing public access and use of ICT. The regional and international environment as an influencing factor was added to our list based on the advice of our research partners. We divided these factors into three larger themes – *Equitable Access, Human Capacity & Relevance and Enabling Environment* (or Access, Capacity and Environment in short) to arrive at this final list of factors :

Access

- *Physical access to technology*
- *Appropriateness of technology*
- *Affordability of technology & technology use*

Capacity

- *Human capacity and training*
- *Locally relevant content, applications and services*
- *Integration into daily routine*
- *Social appropriation of technology*

Environment

- *Socio-cultural factors*
- *Local and macro-economic environment*
- *Political will & public support*
- *Legal & regulatory framework*

- *Regional & international environment*

These fourteen factors formed the basis of a research design that was adapted to local contexts. Field research was divided into two phases of research, to allow for preliminary results and analysis to inform the next phase of research.

This study explores the various venues that provide public access to ICT. Our aim is to inform policy makers and other stakeholders through data and insights that can be utilized to develop national and regional expansion programs. Hence, we concentrated on public libraries, telecentres and cybercafés as venues that have institutional support and are part of a network; an important factor when considering future interventions to improve public access. This meant that we did not study venues such as teashops with computers even if they provided public access. Through the research workshops we arrived at a mutual definition of the three main venues studied in our sample countries:

Public libraries refer to national library networks that were funded by governments. We focused on public libraries as venues that provide information, regardless of the presence of ICT or not.

Telecentres are defined as those venues that were development oriented and provided public access to ICT with a view to helping people achieve social, economic development. We did not limit ourselves to venues that provided free access to ICT but instead ensured that the venues under our category of telecentres were not-for-profit.

Cybercafés are those venues that provided public access to ICT that were commercial in nature, without a fundamentally development oriented agenda.

Our preliminary analysis provided us with insight regarding the three kinds of venues we studied and also brought to light several interesting issues around public access to ICT that we did not explicitly seek. We present our observations about public libraries, telecentres and cybercafés next.

Public Libraries

Our aim in this research project is to identify ways in which public access to information can be improved, particularly through the use of ICT. The successful model of public libraries in the United States providing public access to ICT encouraged us to consider these an important venue for potential policy interventions in other countries. The research design was framed in a way that facilitated the discovery of opportunities or barriers to public access of ICT at public libraries. This section highlights the major findings that emerged from our preliminary data and takes into consideration the fourteen influencing factors that we studied as part of the IIA.

Primary among our findings was the fact that geography and location created barriers for physical access of public libraries. A common theme reported was that libraries were concentrated mainly in the cities with less distribution of libraries in non urban and rural areas. The following chart compares the percentage of urban populations with the percentage of urban public libraries. As is evident, in many countries, public libraries are concentrated in urban areas. This theme was also echoed in the case of telecentres and cybercafés. In general, non urban communities were routinely identified as being less likely to have access to information and to ICT.

Beyond the issue of urban and non-urban venues, the geography of some countries presented additional barriers. In Nepal, where the terrain is mountainous, getting to a venue with public access is not only expensive but difficult; whereas extreme weather in Moldova also prevented people from easily accessing ICT. These factors made it difficult for the *integration of ICT into their daily lives*.

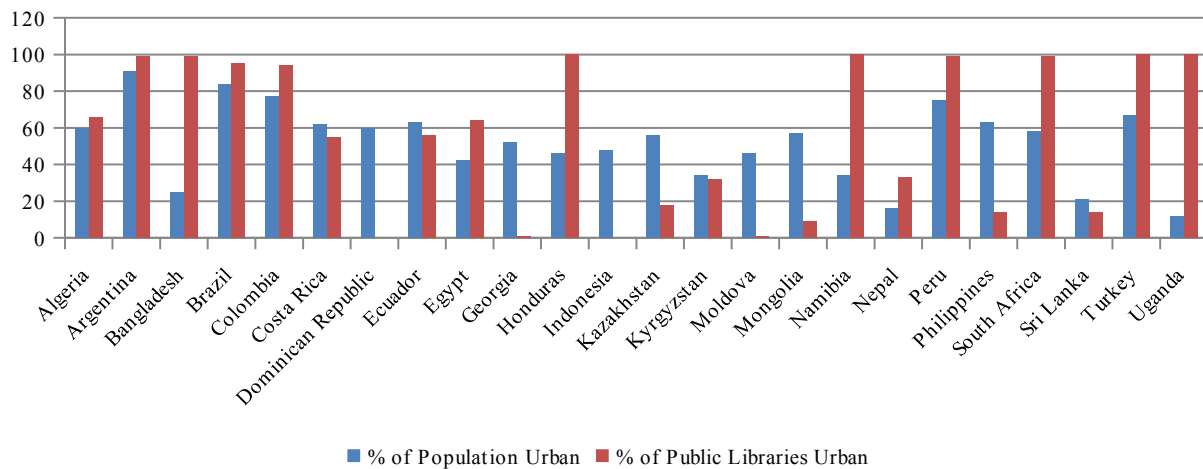


Fig. 2 Comparative distribution of population and public libraries in urban areas

(*Malaysia not included in this chart due to insufficient information. Urban- non urban distribution of Dominican Republic, Georgia, Indonesia and Moldova unavailable at this stage.)

A common thread of findings in the case of existing public libraries in non-urban areas, the materials and technology provided were less likely to be current. *Technology use costs* and infrastructural expenses were also reported as high in many non-urban public libraries. Several researchers reported high communication costs as a barrier to access of ICT. In addition to the fee-for-service costs, a common thread across countries such as Peru, Egypt and Algeria was the inclusion of *costs other than ICT usage costs* —the high cost of transportation to get to the venues, and the likelihood of poorer communities to be working during the regular hours of operation, as was reported in the case of public libraries in Egypt. On a positive note, countries such as Bangladesh, Mongolia, Kyrgyzstan, Kazakhstan and Moldova reported expectations of lower costs of ICT usage in the near future.

The *appropriateness of technology* available in public libraries was a concern reported in countries such as Bangladesh and Sri Lanka. Researchers reported that the available technology is not suitable to satisfy the needs of the locals. In addition, that the current technology often presents information with a Western bias was a significant concern in these countries. ICT in libraries often lacked *locally relevant content*, applications and services in such cases.

The countries of Eastern Europe and Eurasia in our sample - Georgia, Moldova, Kyrgyzstan, and Kazakhstan - shared a common history as part of the former Soviet Union. With particular reference to public libraries in these countries, remnants of the old Soviet administration has left a cultural legacy of *trust in public libraries*. The population of Georgia and Kyrgyzstan reported that while the people valued public libraries, funding streams had dried up over the last sixteen years, leaving outdated information in the libraries. At the present libraries are considered irrelevant due to this lack of current information leading to lessened value of public libraries as such. As a cyclical effect of this lessened value placed on public libraries, the prospects of future funding appear bleak.

The *perception of libraries as trustworthy* sources of information affected the use of public access to ICT at these venues. The formerly Soviet countries in our sample held libraries in high regard as sources of information but also considered them outdated due to lack of resources to update information and ICT available. In Sri Lanka people expressed a sense of nostalgia for public libraries as venues that were once up-to-date and trusted. Lack of resources and general neglect of the library system has however, left these libraries as relics of the past. Interestingly, in Egypt, we also received reports of public libraries being considered venues that were *physically safe* for women to congregate. In cultures where

the movements of women are curtailed, the physical safety offered by public libraries may create opportunities for improving their access to information and ICT.

Telecentres

Telecentres are known by various names in various countries - from the *Nenasala* centres in Sri Lanka, the *Communication and Knowledge centres* in Honduras (CCCC) to the *Development Information and Resource Centres* in Mongolia. They are funded and operated by numerous agencies both governmental and NGO and offer a range of services. For the sake of this study, we defined telecentres as those venues that provide public access to ICT and had an explicitly development oriented.

One of the most important observations that emerged from our sample countries was the **political will** of the people and **political support** by the government was instrumental in increasing public access to ICT. For example, public access to ICT is currently low in our sample South Asian countries of Bangladesh, Nepal and Sri Lanka. Researchers in all three countries reported a high level of **political will, and political support** on the part of their governments to institute programs that would lead to increased ICT access. Some of the measures currently under consideration in these countries included for example increasing foreign investment in this area, creating more infrastructural support and creating a regulatory framework that supported ICT efforts. Unfortunately, all three countries also reported that these initiatives were not always formalized in the legal and regulatory framework, creating a mismatch between aspiration and reality in these countries.

In Latin America, we found that while government initiatives to increase public access to ICT existed, the rapid change of governments in some countries as well as conflict and war resulted in lack of follow through on planned initiatives. Philippines reported a unique case where the high political will of the people received very little support from the government, creating significant barriers to increase in access to ICT.

Another common theme that affected the use of ICT in telecentre was the **lack of trained knowledge workers** who would help the public access and use ICT. Kazakhstan, for example reported that even with a high literacy rate in the country (99.5%) technical literacy lagged far behind due to lack of trained teachers in the area. Countries such as Moldova also reported the phenomenon of brain drain where qualified staff was leaving rural areas for urban centres, leaving rural patrons without recourse to help in ICT usage.

Lack of locally relevant content was near-unanimously reported to be a barrier to ICT access and use. In countries such as Brazil, Costa Rica, Georgia, Sri Lanka and South Africa, our researchers reported a shortage of content in local languages, as well as limited access to current information. Brazil in particular, noted that the obscurity of official information provided renders access to current local information more important.

We added the **social appropriation of technology** list of factors affecting use and access of ICT following the need to understand unintended use of technologies that are provided at public access venues. In many countries that reported a lack of locally relevant content, telecentres are helping people create new content that fulfills local needs. As we reported earlier, Sri Lanka communities criticized the Western bias of information provided and in some telecentres in this country, locally relevant content, in local languages is being created. In countries in Latin America, we also received reports of community organizations being formed in public access venues that champion local issues, not directly related to ICT. The public access and use of ICT in such instances has promoted **civic engagement**. These themes of social appropriation are being further investigated in Phase II of research.

In Latin America initiatives have emerged out of **regional and international environment** that supports the increase of public access to ICT. Investment by foreign donor agencies in the region in the field of ICT is also being cited as a common element. This is currently being investigated in greater detail.

Cybercafés

For this study, we classified all venues that provide public access to ICT on a commercial basis as cybercafés. Our early reports indicate that cybercafés are often the most popular venue for access to ICT. In Peru, for example, commercial cybercafés are fast becoming the single most popular venue of public access to ICT with over 60% of all access to the internet taking place in cybercafés. Cybercafés are most often more evenly distributed between urban and non-urban areas, in comparison to public libraries and telecentres. This was particularly true in our sample of Latin American countries.

The *perception* of cybercafés played an important role in their use to access information particularly with ICT. In most places cybercafés were popular due to their ‘cool factor’ that attracted especially the younger generation for activities related to communication including social networking sites, gaming etc. In contrast cybercafés were not valued in Turkey, due to the perception that only the unemployed and housewives hung out at cybercafés.

Trust in technology is necessary if increasing public access to ICT is to benefit those currently underserved. Ecuador reported that with government restrictions limiting people’s access and use of technology, ICT was not seen as a valuable resource. A common theme observed was people’s inability to see the benefits of information and ICT in their daily lives. In countries such as Costa Rica, Egypt, Moldova, Nepal and Sri Lanka, there was a reported low awareness of the benefits of technology and a lack of recognition of any information gap. In addition to trust in technology trust in venues of public access and more importantly cybercafés can be a factor influencing use. For example, in Costa Rica the government recently introduced some e-government initiatives. At the same time government agencies expressed doubt about the security of data entered in at public access venues such as cybercafés leading to a general mistrust of public access venues and a failure of the e-government services. Currently, initiatives are underway to remedy this situation and increase trust in public access venues.

In considering *cultural factors* affecting access to information, it is also important to note what the government’s position has historically been, in providing information freely. In the cases of Turkey and Egypt it was reported that the government had historically not been in the habit of providing information. In turn, people did not value “official” information. These trends have continued to date in that government agencies have been slow to provide information that is easily accessible and relevant to people’s lives. As can be expected traditional *socio-cultural inequalities* such as class, gender, minority status, etc severely affected access and use of ICT, along with location in urban or rural areas. Gender was reported to be a barrier to accessing venues providing ICT in countries such as Algeria, Egypt, Turkey, and Nepal.

Emergent themes in public access

While further research into trends that have been observed so far is on in our second phase of research, we also noted some interesting new insights that emerged out of our preliminary analysis. These provide early indications of opportunities to increase public access to ICT.

A primary observation was the need for better and effective collaboration among existing venues as the most promising opportunity for future intervention. Most of our sample countries recommended better collaboration between venues already providing access to ICT - whether they are between public libraries and community libraries (as was the case in Argentina and Nepal) or between various government initiatives providing similar services, such as in Sri Lanka. Most country research teams also recommended collaboration between different types of libraries and telecentres and cybercafés as the policy that would have most impact, particularly in the case of South Africa and Peru.

Our findings highlight the importance of working to strengthen the venues where people go, which are not necessarily the ones we had initially thought. In understanding where people go or don’t go, perceptions may matter more than institutional support, training or services offered. Especially among youth, strengthening places that are perceived as “cool” and where youth like to “hang out” may be more effective ways to reaching marginalized communities.

A discussion on what constitutes ‘trivial’ and ‘non trivial information’; and what is ‘acceptable’ use of public access venues is an important one to engage in. Through our research so far, we came across discussion of cybercafés that were considered to provide access only to trivial information or where youth were perceived to be wasting computer time by chatting online while others who ‘really needed to use computers’ waited. Further research will concentrate on factors that influence this classification of particular uses as legitimate or not.

While we structured this research around understanding information needs and how they are met through public access venues and ICT services, we are finding increasing evidence that public access venues are not necessarily places people go to look for information: rather, they are places for communication and interaction, either in person or online. As a safe place for people to meet, hang out and interact with their friends, public access venues that offer ICT may be offering an extension of such communication space: access to online interaction and conversation may far outweigh the value of the concrete information people seek or actually use.

Most importantly beyond focusing on *venues*, our findings shed light on a variety of new experiences and tools that are being explored and used in different contexts to meet information needs of marginalized communities. Some key opportunities in this field point to community radio in Nepal and Uganda, the use of instant messaging in Philippines, the use of Wi-Fi hotspots in Peru. Brazil, Colombia, Honduras, Peru, Philippines, Turkey among others reported the growing use of mobile phones that is replacing the access of ICT in any particular venue.

Conclusion

This research study sets out to map the landscape of venues that provide public access to ICT. In order to engage in participatory research, we entered into partnership with local research teams in our sample of 25 countries and explored public libraries, telecentres, and cybercafés in each of these countries. We focused on factors influencing the access and use of these venues. In order to investigate these factors we created a list of criteria that refer to social cultural, political, environmental factors affecting public access to ICT. By adopting the Integrated Iterative Approach we built in a system of addressing these research question in partnership with multiple stakeholders and created a process where research design, implementation and analysis are conducted in a way that the most meaningful questions were asked in the most meaningful ways.

Our preliminary research and analysis has pointed us in several interesting directions. While more detailed research about public libraries, telecentres and cybercafés is ongoing, we concluded that in order to get a comprehensive comparative view of the breadth of venues providing public access it is necessary to explore libraries other than public ones including religious and temple libraries, specialized libraries and academic ones. Mobile telephony has emerged as vital to further research given the large scale use of mobile telephones in many countries included in our sample. These emergent themes point to areas of policy recommendations and it is our hope to consolidate the current state of knowledge in the field of public access to ICT in order to recommend practical and scalable interventions to increase access and use of ICT particularly for those currently underserved at the end of this process.

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