

Delivering Public Services to the Bottom of the Pyramid: Different modes for different folk

17 January 2013

World Bank project ID: 7162586

Submitted by: LIRNEasia, 12 Balcombe Place, Colombo 8, Sri Lanka

Authors: Ayesha Zainudeen, Ranjula Senaratna Perera, Helani Galpaya

Comments requested and welcome via email to: ranjula@lirneasia.net



Contents

1.0	Executive Summary.....	8
2.0	Introduction and background to the study.....	11
3.0	Telecenters, mobile phones and broader ICTs in Development.....	15
4.0	Methodology.....	18
4.1	Catchment area resident survey.....	19
4.1.1	Sampling.....	20
4.1.2	Data weighting and extrapolation to the population	21
4.1.3	Quality checking.....	22
4.2	Telecenter operator survey	22
4.3	Comparison with Teleuse@BOP4	22
5.0	Findings	23
5.1	Demographic and socio-economic details of the sample	23
5.1.1	Age, gender, geography and SEC	23
5.1.2	Education, occupation and income.....	23
5.1.3	ICT skills.....	25
5.1.4	Household access to technology and services.....	25
5.2	Telecenter awareness and use	26
5.2.1	Services used and provided at telecenters	28
5.2.1.1	<i>Provision of training</i>	31
5.2.1.2	<i>Internet use at telecenters</i>	32
5.2.2	Telecenter user satisfaction	33
5.3	Use of government services.....	35
5.3.1	Awareness of electronic means of accessing government services	37
5.3.2	Most recent government interaction	38
5.3.3	Role of telecenters in accessing government services	39
5.4	Potential for e-gov and m-gov	40
5.5	Sustainability.....	45
5.6	Customers	47
5.7	Voter Identification Card (Bangladesh).....	47
6.0	Discussion.....	50
6.1	Extent of telecenter usage	50
6.1.1	Greater need for telecenters in Bangladesh than Sri Lanka?	50
6.1.2	Effective marketing and awareness-raising of UISCs in Bangladesh?.....	51
6.1.3	UISC acts as a facilitator in the provision of government information and services	51
6.1.4	Partnerships	51
6.1.5	Location.....	52
6.2	Telecenter user characteristics	52
6.3	Interaction with government.....	53
6.4	The way forward	54
6.4.1	Barriers to e-gov/ m-gov	54
6.4.2	Sustainability	54

7.0	Recommendations	56
	References	58
	Appendices.....	61
	Appendix 1: Supplementary tables.....	61
	Appendix 2: List of services provided by Union Information and Service Centres (UISCs).....	62
	Appendix 3: Kish grid	64
	Appendix 4: Survey questionnaires	65

List of figures

Figure 1: Bottom of the pyramid mobile phone ownership 2006-2011 (% of BOP teleusers)	16
Figure 2: Frequency of telecenter use (% of telecenter users surveyed)	26
Figure 3: Satisfaction with cost of services at telecenter (% of telecenter users surveyed)	33
Figure 4: Satisfaction with facilities and services offered at telecenter (% of telecenter users surveyed)	34
Figure 5: Types of government information accessed in last 12 months (% of respondents surveyed)....	36
Figure 6: Nature of the <i>most recent</i> interaction with government (% of survey respondents)	38

List of tables

Table 1: SEC grid for Sri Lanka with target populations of this study highlighted in blue	18
Table 2: SEC grid for Bangladesh with target populations of this study highlighted in blue	19
Table 3: Unweighted sample details.....	20
Table 4: Bangladesh sample details: Comparison of this study versus Teleuse@BOP4 (2011)	23
Table 5: Sri Lanka sample details: Comparison of this study versus Teleuse@BOP4 (2011)	23
Table 6: Highest educational attainment: Current survey vs Teleuse@BOP4 survey (% of survey respondents)	24
Table 7: Primary occupation (% of survey respondents)	24
Table 8: Amount earned (personal income) in the month prior to survey (USD)	24
Table 9: ICT skills	25
Table 10: Household access to technology and services: Current survey vs Teleuse@BOP4 survey (% of survey respondents)	25
Table 11: Awareness and usage of telecenters (% of survey respondents)	26
Table 12: Telecenter awareness and usage (among those aware): SEC, gender and geographical comparisons.....	27
Table 13 : Main reason for choosing to use telecenter most often, when another option is available near by (% who have the option and choose telecenters most often).....	27
Table 14: Telecenter usage among those living within the catchment area of Nenasalas located in non-religious vs religious establishments (% of those who have heard of Nenasalas)	28
Table 15: Reasons for not using telecenters (% of those aware of what telecenter is)	28
Table 16: Top ten services used at telecenters by Bangladeshi users (% of telecenter users surveyed)...	29
Table 17: Top ten services used at telecenters by Sri Lankan users (% of telecenter users surveyed)	29
Table 18: What computers are used for by telecenter users (% of telecenter users surveyed)	29
Table 19: Most commonly provided services by UISCs and Nenasalas surveyed as per operators' reports (% of telecenter operators surveyed)	30
Table 20: Telecenter operator's perception of the services that attract the most number of customers and the highest revenue (% of telecenters surveyed).	30
Table 21: Number of training programs conducted by telecenters in the past twelve months (% of telecenters that conduct any formal computer and/or Internet training programs)	31
Table 22: Number of people been trained through formal training programs at telecenter in the past twelve months (% of telecenters that conduct any formal computer and/or Internet training programs)	31
Table 23: Nature of formal computer and/or Internet training programs provided (% of telecenters that conduct any formal computer and/or Internet training programs)	32
Table 24: Agencies/Institutions who endorsed the formal computer and/or Internet training programs certificate (% of telecenters that issue official certificate for participants who have completed this training).....	32

Table 25: Provision of informal help to use computers and Internet by the telecenter staff (% telecenter that provide informal help to users to use computers and Internet)	32
Table 26: Mean satisfaction with telecenter experience	34
Table 27: Mean rating of telecenters and mobiles with respect to obtaining information and knowledge from either channel among mobile owning telecenter users	34
Table 28: Direct benefits of telecenter use (% of telecenter users surveyed)	35
Table 29: On whose behalf government interaction(s) with the government over the preceding 12 months have been (% of survey respondents)	35
Table 30: Nature of the most recent interaction with government (% of respondents surveyed)	36
Table 31: Awareness of possibility of accessing government information and services through electronic channels (% of survey respondents)	37
Table 32: Specific government information and services that Bangladeshi respondents know can be accessed through a mobile phone or the Internet (% of those who are aware of such a possibility)	37
Table 33: Specific government information and services that Sri Lankan respondents know can be accessed through a mobile phone or the Internet (% of those surveyed who are aware of such a possibility)	37
Table 34: Method of <i>most recent</i> interaction with government (% of survey respondents)	38
Table 35: How contact information was obtained (% of survey respondents)	39
Table 36: Purpose of help related to accessing government information or services through the Internet (% of telecenter operators surveyed who had helped others to access government information or services via the Internet)	39
Table 37: Purpose of help related to accessing government information or services through the mobile (% of telecenter operators surveyed who had helped others to access government information or services via mobile)	40
Table 38: Frequency of Internet use (% of respondents surveyed)	40
Table 39: Internet use among those 28 or below and over 28 years old (% of respondents surveyed) ...	41
Table 40: Preferred method to obtain information about government and its services on the mobile (% of respondents surveyed)	41
Table 41: Reasons why residents prefer not to use the mobile to obtain information on Government (% of respondents surveyed who preferred not to use mobile for this purpose)	42
Table 42: Preferred method to to access government services (% of respondents surveyed)	42
Table 43: Reasons why residents prefer not to access government services over mobiles (% of respondents surveyed who preferred not to use mobile for this purpose)	42
Table 44: Rating of time taken to access the necessary government information or service in their most recent interaction (% of survey respondents)	43
Table 45: Reliability of government information gained/service used in their most recent interaction (% of survey respondents)	43
Table 46: Costs incurred when dealing with the government or information/services (% of survey respondents)	43
Table 47: Overall, satisfaction with the resident's last interaction with the government (% of respondents)	44
Table 48: Main difficulty in interacting with the government in general (% of those who were not satisfied with most recent interaction with government)	44
Table 49: Timeliness of complaint been heard or responded to by the government (% of those who had made a complaint to the government)	44
Table 50: Requirements to make or increase profits in the long run (% of telecenters surveyed)	45
Table 51: Form of support that assisted in the operation of the telecenter (% of telecenters surveyed that receive any support)	45

Table 52: Problems faced in the operation of telecenters (% of telecenters surveyed)	46
Table 53: Electricity breakdowns experienced in the last month (% of telecenters surveyed)	46
Table 54: Computer breakdowns and disruptions in Internet connection experienced in the last month (% of telecenters surveyed)	47
Table 55: Total number of customers received at sample telecenters in the month of August 2012 (% of telecenters surveyed)	47
Table 56: Age breakdowns of Voter Identification Card possession (% of Bangladeshi respondents surveyed).....	48
Table 57: Services that needed an ID card to be accessed by citizens, as perceived by respondents (% of Voter Identification Card holders in Bangladesh).....	48
Table 58: Services that needed a Voter ID card to be accessed by citizens, as perceived by respondents (% of Voter Identification Card holders in Bangladesh) by gender and age.....	49
Table 59: Changes to Voter Identification Card needed among the people who had one (% of Voter Identification Card holders in Bangladesh).....	49
Table A1: Full list of services used at telecenters (% of telecenter users).....	61

List of abbreviations

API	Application programming interface
A2I	Access to Information
BOP	Bottom of the pyramid
CIC	Community Information Center
ICT	Information and communication technology
ICTA	ICT Agency
IDEA	Identification System for Enhancing Access to Services
GIC	Government Information Center
G2C	Government-to-citizen
N	Number of respondents
PPP	Public private partnership
SEC	Socioeconomic classification
SMS	Short message service
Std. Dev.	Standard deviation
UISC	Union Information and Service Center
UNDP	United Nations Development Program
UP	Union Parishad
USD	United States Dollars
VPP	Villagephone Program

Acknowledgements

The Authors are grateful to the valuable insights and information provided by the following people in the conduct of this study: Tenzin Norbhu (World Bank); Asad-Uz-Zaman (Access to Information Programme, Bangladesh); Jagath Seneviratna and Gavashkar Subramanian (ICT Agency of Sri Lanka); Helal Uddin Khan (Nielsen Company, Bangladesh); Faheem Hussein, PhD (Asian University for Women, Bangladesh); Participants of the colloquium at LIRNEasia where the first draft of results were discussed. The data from the Teleuse@BOP surveys that is used and quoted in this report was based on a separate research activity conducted by LIRNEasia in 2011, with the aid of a grant from the International Development Research Centre, Ottawa, Canada (www.idrc.ca) and UKaid from the Department for International Development, UK (www.dfid.uk).

1.0 Executive Summary

Along with many developing nations, the governments of Sri Lanka and Bangladesh have embarked on ICT-enabled development initiatives in the recent past. Sri Lanka was a pioneer in this aspect, with its *e-Sri Lanka* initiative that started in 2003. E-Sri Lanka's re-engineering government program was designed to make government services more citizen-centric, and has been successfully ICT-enabling many government services since inception. Several years after e-Sri Lanka's design, Bangladesh followed with *Digital Bangladesh* with the aim of delivering government services to every household through maximum use of technology, and thereby improving the daily lives of citizens.

Given low income levels and low internet penetration, even if all government services were ICT-enabled, a channel was still needed to deliver these to citizens. While the growing middle class may potentially access the Internet at homes or offices, a cheaper, common access model was required for the poor. Sri Lanka's 600+ Nenasalas and Bangladesh's 4000+ Union Information and Service Centers (UISCs) were government funded attempts to bridge the digital gap and to deliver government services to the poor. Since the design of e-Sri Lanka, both countries have seen an almost exponential increase in mobile access, ownership and use. Today, mobile Internet subscriptions are the fastest growing section of the mobile market. Though Internet access through traditional computer-based terminals (i.e. "big screen" Internet) remains low in both countries, and increasing number of people, even poor people, have Internet enabled phones, or are already using the Internet via mobile devices ("small screen" internet). This situation, where a large number of citizens have three modes (phones, telecenters, physical visit to government office) to access government services, presents an opportunity to study how people make choices about where and which mode. As an initial step to understand such behaviors, a survey of poor citizens (defined as those belonging to socio economic classification D and E) residing within 5km of a Nenasala or UISC were surveyed. To do this, 90 and 275 telecenters (government sponsored public access points) were randomly selected in Sri Lanka and Bangladesh. 20 SEC D and E citizens living within 5km of each selected telecenter in Sri Lanka and 10 in Bangladesh were randomly selected, yielding a 1800 and 2750 respondents in the two countries, respectively.

Findings

- **Higher overall use of telecenters in Bangladesh than in Sri Lanka:** The results show differences in the two countries are sometimes significant. Bangladesh had a higher level of awareness (67% were aware) and usage (52% of those aware had used) compared to Sri Lanka (where the corresponding numbers were 45% and 16%).
 - **Higher use in Bangladesh may be due to location of the telecenter and area demographics:** Higher use of the telecenter among catchment area residents in Bangladesh may, at least in part, be attributed to the lack of other options within a similar distance. For example, only 28% of Bangladeshi telecenter users said they also used other communication shops/internet cafes that offer similar services in the local area, while 56% in Sri Lanka had. This indicates that other (commercial) alternatives are available near telecenters in Sri Lanka, thereby reducing the need to go to a telecenter, while alternatives were limited Bangladesh. In both countries, convenience of location was cited as the main reason for choosing the particular telecenter most often. But in Bangladesh 65% said the specified (local) telecenter was used due to its convenient location, while in Sri Lanka only 46% said so.
- While the UISCs are located within/adjoining Union Parishad offices, Nenasalas in Sri Lanka have different types of locations – within religious institutions, and outside them (i.e. at locations that are non-religious in nature). While awareness was similar among residents in the catchment areas of both types of Nenasalas, usage was significantly lower among those living near a

Nenasala located within a religious institution (8%) compared to much higher usage by those living near a Nenasala that is not located in a religious institution (26%).

Though respondents had equal access and ownership of mobile phones, other characteristics of the target population was different across countries. In Sri Lanka they were more educated and had better access to technology (television, radio) and other amenities (electricity, bank account) in the household compared to Bangladesh. In particular, 14% of the Sri Lankan BOP households had a computer or laptop, and 8% had an Internet connection, compared 3% and 2% in Bangladesh. Thus it seems that the catchment area residents in Bangladesh were more likely to need the services of a telecenter compared to Sri Lanka. Viewed another way, compared to Sri Lanka, the telecenters in Bangladesh were located in the “right” areas where the residents were more likely to need such services. 76% of Sri Lankan respondents selected “no need for its service” as the reason for not using the telecenter even though they were aware of what a telecenter was (the number was 45% in Bangladesh). At a micro-geography level, this indicates that the Nenasala locations aren’t ideal. But it could also be because government services work efficiently in Sri Lanka without assistance from Nenasala’s, thereby reducing people’s need to use a Nenasala for that purpose.

- **High gender gap in telecenter use in Bangladesh:** The gender gap in awareness and use of telecenters in Bangladesh was significant, with 82% of males aware of the telecenter compared only 49% of females and 60% of males having used the telecenter compared to 35% of females. Such a difference was not observed in Sri Lanka.
- **Use of telecenters for e-Gov significantly higher in Bangladesh:** 71% of those surveyed in Bangladesh said they had accessed or obtained information on government services through information accessed at a telecenter, while in Sri Lanka only 20% did.
- **Awareness of e-Gov and m-Gov possibilities low in both countries:** Lack of awareness was a barrier in both countries, with 58% and 38% in Bangladesh and Sri Lanka respectively not knowing that government information and services can be accessed through mobile phones or the Internet.
- **Citizens in both countries open to m-Gov, but on voice:** A high number in both countries (52% in Bangladesh and 77% in Sri Lanka) claimed they would like to use the mobile to obtain government information and to access government services by simply calling. SMS and email were much less popular modes to access government services.
- **Respondents in both feel visiting a government office is better due to more attention being paid:** But in both countries, the highest reason for claiming they do NOT want to use a mobile phone to access government services was the perception that they could get more importance or attention by using other means such as going to a government office personally.

Recommendations:

- **Call center(s) to give basic information on government service in Bangladesh:** Percentage Bangladesh who say there “isn’t enough information on procedures and requirements needed to get a job done” is double that of Sri Lanka. This is an opportunity for Bangladesh to go for quick win – by implementing a service similar to Sri Lanka’s Government Information Center, which is simply a call center that provides information on how to access government services (e.g. gives information on which forms to fill, hours of operation of various offices, where to apply, how much the fees are, etc.)
- **Increasing awareness of e-Gov, m-Gov and what can be accessed with phones and at telecenters:** Higher awareness clearly leads to higher use in both countries. Therefore campaigns to educate consumers would give huge wins.

- **In the future, locate telecenters in areas/places where the need is highest in Sri Lanka:** Given limited government resources, it seems best to clearly identify the areas where community Internet access is needed the most – in rural areas where the poorest live, where other commercial alternatives are not available at a reasonable price, and outside of religious institutions.
- **In the future, co-locate telecenters at government offices (e.g. next to Grama Niladhari Offices) in Sri Lanka:** One success factor in Bangladesh seems to be the location of UISCs within the Union Parishad (lowest unit of government administration), even though the UISC itself is run by a separate entrepreneur. This may help the perception that the telecenter is in some way more closely associated with government, and there by a more “official” place to access e-Gov services. More importantly, this will go towards a “one-stop-shop” where citizens can download forms, fill them out, and get the necessary certifications by a Grama Niladhari (lowest level of government administrative officer in Sri Lanka) that is often required for obtaining many services.
- **Re-think ownership models or entrepreneurship modes to bridge the gender gap in Bangladesh:** The significant gender gap in telecenter awareness and use needs to be addressed. Each UISC (in its design) is supposed to have both a male and female entrepreneur. At least in theory this should have made the UISC centers welcoming places for women. However, the significant gender that gap that exists in UISC center usage implies more creative solutions are needed.

2.0 Introduction and background to the study

This report presents the findings and recommendations from a study on *Delivering Public Services to the Bottom of the Pyramid* conducted by LIRNEasia on behalf of the World Bank in 2012. The objective of the study is to explore how the poorest, or *bottom of the pyramid* (BOP) market segments access government information and services, and identify what role telecenters and/or mobile phones can play. The study therefore looks at the use of telecenters in two developing countries which have embarked upon large-scale telecenter initiatives as a part of their broader digital strategies: Sri Lanka and Bangladesh.

This report is a draft version, submitted to stakeholders for feedback and comments prior to a videoconference presentation to be held on in December 2012. The feedback received before and during the videoconference will be taken into consideration in drafting the final version of this report.

1.1 Background

Various ICT initiatives for improving public service delivery have or are in the process of being implemented across South Asia. Sri Lanka and Bangladesh have both undertaken cross-cutting and comprehensive ICT-led development initiatives which have e-Government and connectivity components.

Both countries have significantly large initiatives aimed at reforming government processes through re-engineering and automation. Both also aim to then deliver these (reformed and automated) government services to citizens using ICTs. The primary new channel for delivery of services is via the Internet—mostly the traditional Internet, based on broadband and a computer terminal. Given the level of poverty in both countries, the projects rely on community access points or telecenters to provide Internet access to citizens.

Both countries have thus embarked on telecenter projects as a part of their respective national ICT strategies. In Sri Lanka, the *Nenasala* project is one component of the World Bank-funded *e-Sri Lanka* Initiative implemented by the Information and Communication Technology Agency (ICTA) of Sri Lanka. The project's aim is to provide ICT-based services and increase use of ICTs in Sri Lanka, toward the greater goal of poverty reduction, social and economic development and peace building. Between 2005 and 2012, a total of 691 Nenasalas (or *Knowledge Centers* or *Wisdom outlets*) were established.¹ The Nenasalas have different ownership models, the main types being religious, social and individual. They are aimed at offering basic services such as telephone, computer use, Internet connectivity, fax, and photocopying, as well as delivering social services, including e-Government, community information and health information (Skills International, 2010). Nenasalas are provided the initial equipment like computers, Internet connectivity subsidy, training for the telecenter operator and depending on location, a financial assistance package may also be provided.²

Similarly *Digital Bangladesh* is an integral component of Vision 2021, an election manifesto which targets establishment of a resourceful and modern country by 2021 through effective use of ICTs, with emphasis on four elements which are human resource development, people involvement, civil services and use of information technology in business.³ The goal of Digital Bangladesh is to ensure the delivery of government services to every household through maximum use of technology with the ultimate goal

¹ <http://www.nanasala.lk/main.php>

² Rural, semi-urban and certain other designated areas may be provided financial assistance, starting from as much as 100% to 25% scaling down to 0% by the end of the 4th year (ICTA, 2008).

³ <http://www.thedailystar.net/newDesign/news-details.php?nid=79698>

of improving the daily lives of citizens.⁴ In this regard, *Union Information and Service Centers* (UISCs) have been established in every *Union Parishad* (UP, the lowest administrative level of local government), 4,501 in total. UISCs are intended to be one-stop service outlets to provide a host of services ranging from phone calls to photocopying to assistance with government service forms.⁵ Under a partnership between the Local Government Division and the UNDP's *Access to Information* (A2I) program UISCs began operation in 2009. One of the ultimate goals is to take information related to government, livelihood and private services to rural areas. The UISCs operate under a public private partnership (PPP) model by local entrepreneurs, under supervision of a local advisory headed by the UP Chairman at the local UP office. A room (or space) is provided by the UP office whilst the equipment such as computers, printers, digital camera etc. are provided through support from other institutions (UNDP, n.d.a)

The adoption of telecenters/public access points was certainly sensible at the time of design of e-Sri Lanka, and perhaps even at the time of design of Digital Bangladesh. Both countries have a large number of poor citizens who do not have access to traditional Internet resources or computers at home, and who are unlikely to be able to do so in the near foreseeable future. As such, Internet access points where costs are subsidized by the government were a sensible solution, and probably still is a necessary solution as far as the poor are concerned.

Since the start of the telecenter movement in the world, significant changes have taken place in the technology landscape in most countries – previously unexpected numbers of people, including poor people, have access to and use mobile phones on a day-to-day basis. The situation in the two countries that are the target of this study is the same. For example, a representative sample survey of the BOP (defined here as those belonging to socio-economic classification D and E; see Section 4 for details) in Bangladesh and Sri Lanka showed that 87% and 94% of the BOP, respectively, had used a phone to make or receive a phone call in the week preceding the survey and that 99% and 90% had done so in the month/etc. preceding the survey (LIRNEasia, 2011). Given this evidence that the majority of the poor now have access to a mode of digital communication that is affordable and is capable of not just communication via voice and SMS, but other forms of information retrieval using mobile broadband, the question is whether the phones can enhance the access and use of government services by the poor—by complementing telecenter access, by substituting for it, or as the only option where telecenters are not available. This question is timely, given evidence that even with a reasonably large number of telecenters in both countries targeting the poor, the use of Internet (and therefore the use of available e-Gov services) by the poor is very low. Recent survey data (shows that Internet use among the same BOP teleusers⁶) is low: 98 percent and 90 percent in Bangladesh and Sri Lanka respectively had *not used* the Internet in the last 12 months; 17 percent of the BOP teleusers in Bangladesh had never heard of the Internet (LIRNEasia, 2011).

The high use of mobiles by the BOP, combined with the increasing awareness of the opportunities offered by mobile phones to disseminate knowledge and information to citizens, is increasingly leading many governments to focus on m-Government (government services delivered at least in part via mobile phone or mobile-like terminal devices) instead of traditional computer (“large screen”) devices. Because *e-Sri Lanka* is one of the oldest initiatives (where the design was started before the “mobile wave”), not much attention was paid to mobile phones as a service delivery channel, even though current technical architecture will enable mobile payments (for example) in the future. Perhaps more importantly, it is not too late for newer initiatives (such as the ones in Bangladesh) to take the mobile phones into account and designing G2C service delivery, thereby leapfrogging the need to rely on

⁴ <http://boi.gov.bd/about-bangladesh/government-and-policies/digital-bangladesh-overview>

⁵ See Appendix 2 for list of services provided by UISCs

⁶ Those who have used a phone in the last three months.

telecenters. However, just because mobile phones are ubiquitously available and accessible, it doesn't mean that it will be the preferred mode of government service access for the poor. Many other factors beyond the easy availability of the phone will come into play when users decide on a channel.

This study, therefore, is an attempt to identify the current situation with regards to telecenter use, to understand how the poor, or BOP, access government services and information, and how they make choices across different modes (telecenter vs. government). Given that the target audience of these telecenter initiatives has largely been the poor, the focus is on this segment. Using the definition of SEC D and E as the definition of "poor" (or BOP) is justified on the basis that it enables comparison with other publically available representative data from the two countries, and the close correspondence that SEC D and E has with those living on under USD 2 per day (a common definition of "poor" used by development aid agencies). The choice of Sri Lanka and Bangladesh is due to the fact that both countries have comprehensive digital-enabled development programs that have e-Government and telecenter components.

The study tries to answer questions such as: is the target population (those living/working within the catchment areas of the telecenters) being served in the way expected? Are poor citizens able to access G2C services as a result of the telecenters? In terms of obtaining information and knowledge, how does a telecenter compare with a mobile phone? What are the barriers to effective use of each?

While there have been surveys⁷ in Sri Lanka (done as part of the Monitoring and Evaluation of e-Sri Lanka's projects) that focused on Nenasala users, they are by now several years old. More importantly, the surveys only focused on Nenasala users, thereby failed to understand why certain users (living in the catchment areas) did *not* use the Nenasalas (for interacting with government or otherwise). By targeting both users and non-users of the telecenters, the survey will for the first time enable a comparison of the alternatives utilized by citizens. In Bangladesh, given the newness of the UISCs, there have been no surveys carried out; therefore the data will provide a valuable baseline for future comparison.

For Bangladesh in particular, the study collects information on the national voter ID cards which have been issued with the support of the World Bank's Identification System for Enhancing Access to Services (IDEA) project. The purpose of this project is to establish a secure, accurate and reliable national ID system that serves as the basis for more efficient and transparent service delivery. This study tries to identify whether citizens want to change the data or photographs on their existing card, and identify what poor people believe to be the benefit of having a card.

Indeed, these telecenter projects promoted and/or funded through the respective governments are not the only ones in these countries. Bangladesh has numerous non-government telecenter initiatives in operation (for example, Grameenphone's Community Information Centers [CICs] is one of the largest, with over 500 CICs across the country, among others), as well as the numerous commercially operated communication kiosks and Internet cafés throughout the country. Sri Lanka's largest community based organization, Sarvodaya also operates a number of telecenters across the island, while thousands of "communication bureaus" and Internet cafes are independently in operation across the island, catering to the population's ICT needs on a commercial basis. This study focuses on the government-led telecenter programs in the study countries ("Union Information and Service Centres" (UISC) in Bangladesh, and "Nenasalas" in Sri Lanka), as these telecenters are the best positioned to assist in the delivery of public services to the populations at large.

⁷ ICTA, 2008.

The study consists of two surveys, the first being a survey of over 4,550 residents living within a five kilometer radius of randomly selected telecenters in the two countries (UISCs in Bangladesh and Nenasalas in Sri Lanka) who belong to the lowest two socio-economic groups, or the “bottom of the pyramid.”⁸ This sample includes both telecenter users as well as non-users. The second survey is of 50 UISC and Nenasala operators in the two countries.

The study is anchored on the overall findings of LIRNEasia’s multi-country demand-side study of how the BOP uses ICTs, “Teleuse@BOP,”⁹ where BOP mobile ownership has been seen to be high in Bangladesh and Sri Lanka while Internet access is very low. These findings have serious implications for how governments design the channels for delivery of public services, in order to reach the BOP population, which makes up a large proportion of the total population in both countries under study.

⁸ See Section 4 for more details on BOP definition.

⁹ <http://lirneasia.net/projects/icts-the-bottom-of-the-pyramid/>

3.0 Telecenters, mobile phones and broader ICTs in Development

In the nineteen-eighties, telecenters arose in the United States and Scandinavia. The first US telecenters were aimed at bridging digital gaps among marginalized groups, while those in Scandinavia were more of social experiments to see what people would do with the technology (Molnár and Karvalics, 2002). Since then, telecenters have flourished in many low income, low ICT penetration countries as an attempt to provide access to, and assist with e-Gov services, in addition to basic telecommunication, Internet, and other livelihood enhancement initiatives to the poor. Significant amounts of government and donor funds have gone into funding telecenter pilots and projects, in search of a sustainable model for ICT access and other services to the poor, which could be replicated in similar settings.

Telecenter projects aim to provide not only access, but *affordable* access to ICTs and other services through ICTs, where individual ownership and subscription is out of reach of the poorer segments of society. The motivation for this was the considerable socio-economic benefits of ICT access that would arise from widespread access to information and knowledge through ICTs, including access to a host of information, knowledge and services where access would previously not have been possible. This thinking is, and was well justified. Such benefits of ICT access have been well documented and are widely accepted. Hardy (1980), Cronin et al. (1991), Parker and Hudson (1995), and more recently Roeller and Waverman (2001), Waverman, Meschi and Fuss (2005) as well as Kathuria, Uppal and Mamta (2009) are just a few who have demonstrated the positive impacts of telecommunication on economic growth and development at a macro-level, over time. At a micro-level, several studies have also tried to evaluate the impacts of access to telephony (particularly mobile phones), with varying levels of sophistication, but generally confirming that access to phones can contribute to improved livelihoods (through improved access to information, coordination, etc.) for various segments (Abraham, 2007; Aker, 2008; Bayes et al., 1999; de Silva & Ratnadiwakara, 2008; de Silva & Zainudeen, 2007; Donner, 2006; Frost & Sullivan, 2006; Goodman, 2005; Jensen, 2007; Kyem & LeMaire, 2006; Lokanathan & de Silva, 2011; Souter et al., 2005).

While telecenter projects proliferated through much of Africa and developing Asia, many were unable to achieve financial sustainability in the long run. A key difficulty was a lack of reliable and affordable connectivity, which was necessary to provide Internet and other services (Benjamin, 2001). Telecenter locations were often selected because they had *no* existing telecom infrastructure. Expensive connectivity solutions which were brought in (for example, leased lines, VSATs) were hard to maintain once donor funds ran out. Other problems of a lack of local content (Benjamin, 2001; Ernberg, 1998), electrical and equipment breakdowns (Benjamin, 2001) were also common. Other studies of more recent initiatives have cited lack of demand (Dossani et al., 2005), lack of awareness of the telecenter, the availability of alternate acceptable sources of information, and a lack of confidence in their abilities to use the technology (Gollakota, 2010) as reasons for failure.

This being said, there have been some positive experiences with shared/community access. The Grameen Villagephone program (VPP) is one such example, where rural women were loaned money to start up mobile payphone services in their villages. This was very successful in terms of getting much-needed telecom services to over 45% of Bangladesh's rural population at a time when the total number of telephone connections per 100 inhabitants was 3.4 (Knight-John et al., 2007). However, as mobile phones became affordable and widespread, the role of the village payphone declined substantially leading to obsolescence of the Villagephone Ladies (Shaffer, 2007). The impact the VPP program has had on rural connectivity and development in general, in the early stages is unquestionable, but as the context changed, so did the need for the service as it was.

Therefore, as rural connectivity has vastly improved in the last ten years in most developing countries, the market for *shared* telephone access has declined considerably. The growth in personal mobile

ownership, even at the BOP (Figure 1) has greatly reduced the need for shared and public access phones (even previously commercially viable ones) although the role of shared access facilities has not been eliminated altogether (CKS consulting, 2009; Sivapragasam and Kang, 2011).

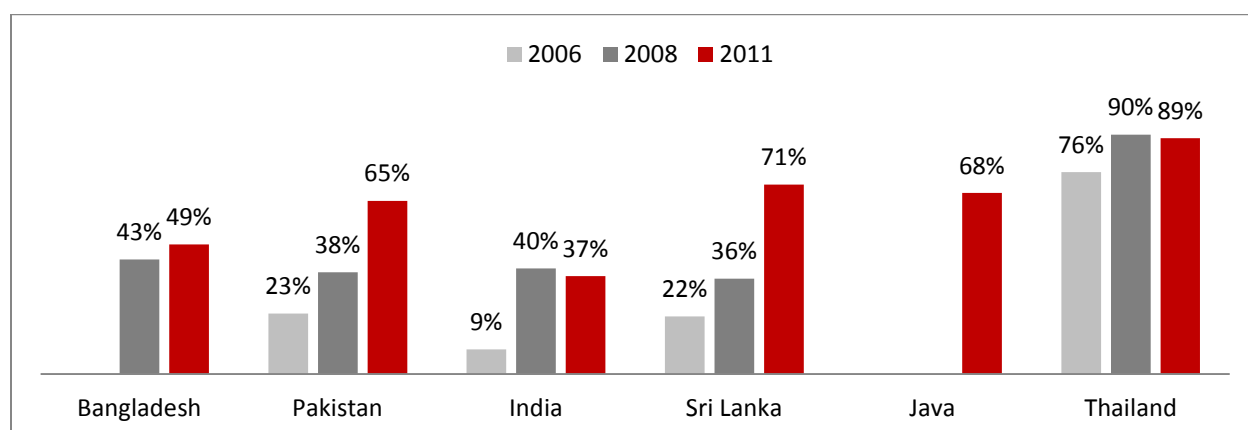


Figure 1: Bottom of the pyramid mobile phone ownership 2006-2011 (% of BOP teleusers)

Notes: data not available for Bangladesh and Java for 2006, and Java for 2008; all numbers reported for 15-60 age group.

Source: Teleuse@BOP survey findings, 2006-2011, LIRNEasia

There is also increasing evidence that many in developing markets are getting on to the Internet through mobile phones. Not necessarily in the conventional form, but through “more-than-voice” services, such as m-payment, m-commerce and m-Gov services, as well as information services (livelihood as well as entertainment) among others (Zainudeen and Ratnadiwakara, 2011). These services are relatively new, thus large-scale adoption is yet to happen, however, the idea is that these mobile-based services will allow for a greater number of consumers to be reached with lower transaction costs, leading to more affordable service for the consumer (Ivatury & Mas, 2008; McKay & Pickens, 2010; Wishart, 2006). These kinds of services can considerably reduce the relative cost of engaging in small-value transactions, a particular advantage for BOP consumers. While some positive evidence is emerging (Goodman and Walia, 2006; Morawczynski, 2008; Mittal, Gandhi, and Tripathi, 2010; Lokanathan and de Silva, 2011) it is still too early to tell how far these benefits will reach.

This throws out an opportunity for m-Gov to prove itself. M-Gov is a relatively new phenomenon whose potential is largely unknown and unexplored. It is considered an extension of e-Government to mobile platforms, as e-commerce is to m-commerce. The use of mobile technologies to enhance the provision of online services and enable new communication channels has contributed towards removing some of the barriers to electronic service delivery and citizen participation in public affairs (Poblet, 2011).

Three interrelated evolutions have accelerated the development of m-Gov: advancements in mobile technology, wider acceptance of these technologies by the public and the development of government applications and services (Vrechopoulos et al., 2011). Moreover, mobile-based services offer greater potential for social impact than any other ICT, being more accessible in terms of coverage, affordability and, also, being less demanding in terms of skills and training required (Kinkade et al., 2008).

Mobile phones have been cited by many as the best technology for interacting with citizens due to their widespread user uptake. Survey data (LIRNEasia, 2011) shows while Internet use among the poor is low, phone usage is near universal, with, 99% and 90% of the BOP in Bangladesh and Sri Lanka respectively having used a phone in the three months preceding survey. Over 85 and 70 percent of BOP teleusers in Sri Lanka and Bangladesh respectively had used a phone on the day preceding the survey.

As a result, governments around the world have begun to take such realities into consideration in the delivery of public services.¹⁰ This is true even in several countries in South Asia, for instance in Sri Lanka train schedules can be accessed through SMS; SMS notifications are sent to passport applicants when their passports are ready for collection. Similarly, in Bangladesh, public exam results can be accessed via SMS.

In recognition of this changing context, the role of telecenters also has had to evolve. Their role has gradually evolved from a means to achieving universal access to telecom and Internet, to include access to government, educational and other services essentially through a human interface at the village level. This is one role that Nenaselas and UISCs have been intended to fulfill.

¹⁰ Some more progressive governments have even gone as far as releasing masses of public data and APIs [application programming interfaces] to the public to enable development of useful mobile applications.

4.0 Methodology

This report is based on two surveys conducted in 2012 among 4,550 potential users of telecenters and 50 telecenter operators in Bangladesh and Sri Lanka. Fieldwork was conducted in September 2012 in Sri Lanka and Bangladesh.

Given that the objective of telecenters has been to provide ICTs and other services to the poor, or the “bottom of the pyramid” (BOP), potential users were defined as those belonging to socioeconomic (SEC) groups D and E who reside within 5 km radii (catchment area) of selected telecenters in the two countries. These potential users were limited to individuals aged 15-40 who had interacted with the government (through any mode, be it in person, by call, via Internet or otherwise) in the last 12 months for themselves or on behalf of someone else.

SEC classification is a widely used method used to classify households in market research. It is based mainly on the education and occupation of the chief wage earner of the household (as well as a few other parameters in certain countries). The SEC classification categorizes households into groups A (highest/richest) to E (lowest/poorest), with finer gradations sometimes done within a given classification (e.g. SEC E is further broken down into E1, E2, and so on). The SEC D and E groups together correspond to an income of around USD 2 a day in the countries studied, thereby allowing for cross-country comparisons. The chief wage earner is defined as the person who contributes the most to household expenditures. The classification is done as per the grids given below (Tables 1 and 2). Given the difficulties related to establishing income during sample surveys (e.g. respondents tend to over or underreport their income depending who is asking the questions in the survey), the SEC classification is an appropriate proxy to identify and classify users’ income levels based on other criteria (occupation and education, specifically).

The targeted groups, SEC D and E are highlighted in the SEC grid for Sri Lanka (Table 1) and Bangladesh (Table 2) below.

Table 1: SEC grid for Sri Lanka with target populations of this study highlighted in blue

Occupation	Education level				
	Illiterate	Up to grade 5	Grade 6-9	Ordinary-level and Advanced-level	Graduates/ Professionals
Farming/agriculture	E2	E2	E1	D	-
Administration/managerial – senior	-	B1	B1	A2	A1
Administration/managerial – junior	-	B1	B1	A2	A1
Laborer / trained	E2	E1	D	C	-
Laborer/ untrained	E2	E2	E1	D	-
Clerk	D	D	C	B2	B1
Trade	E2	E1	D	C	B2
Industrial/ trained	E2	E1	D	C	B2
Industrial/ untrained	E2	E2	E2	D	-
Professional	-	-	-	-	A1

Services	E2	E1	D	C	B2
Self-employed (no employees)	E1	D	C	B2	B1
Business (1-9 employees)	C	B2	B1	A2	A1
Business (Over 9 employees)	B1	B1	A2	A1	A1

Table 2: SEC grid for Bangladesh with target populations of this study highlighted in blue

	Education level							
	Illiterate	Literate with no formal education	Class 4	Class 5 to 9	S.S.C/H.S.C	Have some college education but not graduate	General Graduate or above	Professional Graduate or above
Unskilled worker	E2	E2	E2	E1	D	D	D	D
Skilled worker	E2	E1	E1	D	C	C	B2	B2
Petty trader	E2	D	D	D	C	C	B2	B2
Shop owner	D	D	D	C	B2	B1	A2	A2
Business person/Industrialist without any employee	D	C	C	B2	B1	A2	A2	A1
Businessperson/Industrialist with 1 to 9 employees	C	B2	B2	B2	B1	A2	A1	A1
Businessperson/Industrialist with more than 10 employees	B1	B1	B1	A2	A2	A1	A1	A1
Self-employed professional (e.g. Doctor, Engineer, Lawyer etc.)	D	D	D	D	B2	B1	A2	A1
Clerk/Salesperson	D	D	D	D	C	B2	B1	B1
Supervisory Level	D	D	D	C	C	B2	B1	A2
Officer/Executive-Junior	C	C	C	C	B2	B1	A2	A2
Officer/Executive-Middle/Senior	B1	B1	B1	B1	B1	A2	A1	A1

4.1 Catchment area resident survey

The catchment area resident survey was conducted among 15-40 year old SEC D and E individuals residing within a 5km radius of a selected telecenter. As a screening question, all eligible respondents were asked whether they had had any “interaction” with the government in the preceding twelve months. This “interaction” could be one or more of the following on the respondent’s behalf or on that of someone else:

- *Obtain information:* To obtain information on the government and its services (e.g. get information on whom to contact, where to go, opening hours, how to do something; or to get a form, etc.)
- *Obtain/access services:* To use a government service, or “get something done” (e.g., to submit a form, apply for something, lodge a complaint, etc.), an act this beyond simply obtaining information

These interactions could have been at a local level (e.g. with the Divisional Secretariat, Pradeshiya Sabha, Grama Niladhari office, Union Parishads) or regional/state/district level (e.g. with the Provincial Councils, District Secretariat, Provincial Departments) or central/national level (e.g., with a ministry, department, agency or other government body).

4.1.1 Sampling

In Sri Lanka, the list of 632 telecenters were obtained from the Nenasala website, <http://www.nanasala.lk/>¹¹ out of which 90 telecenters were randomly selected for the study (to sample for residents from). In Bangladesh since UISCs are located at every Union Parishad, a list of 4,495 Union Parishads was obtained from the Local Government Division website, <http://www.lgd.gov.bd/>, out of which 275 UISCs were randomly selected for the study. In both cases, stratified random selection of telecenters was undertaken to ensure representation of provinces (Sri Lanka) or divisions (Bangladesh). As such, the proportion of telecenters selected in each province/division was chosen in proportion with the number of telecenters in those provinces/ divisions. Within a province/division telecenters were randomly selected thus each telecenter had an equal chance of getting selected. See Table 3 for sample details.

Once a telecenter was selected a 5km radius was marked round the telecenter. In Sri Lanka 20 interviews were done within a 5 km radius of each selected telecenter and a total of 1800 interviews were conducted. In Bangladesh this number was 10, meaning the catchment area of 275 telecenters were visited to conduct 2750 interviews.

Two locations were randomly selected within this 5km radius and random interviews were conducted from a given starting point which was a prominent location in the vicinity such as a hospital, community center etc. When there was an overlap in the demarcated areas then the starting points were selected in a manner that avoided the overlap.

The sample composition of both countries is given in Table 3.

Table 3: Unweighted sample details

Country	Province/Division	Number of telecenters in province/division	Number of telecenters randomly selected for sample	Number of residents selected for sample
Sri Lanka	Western	51	7	140
	Central	93	14	280
	Southern	94	14	280
	North Western	68	10	200
	North Central	65	10	200
	Uva	78	10	200
	Sabaragamuwa	85	10	200
	Eastern	84	10	200
	Northern	14	5	100
	Total	632	90	1800
Bangladesh	Barisal	336	13	130
	Chittagong	922	61	610
	Dhaka	1246	76	760
	Khulna	566	36	360
	Sylhet	329	17	170
	Rajshahi	1096	72	720

¹¹ As of 2/1/12

	Total	4495	275	2750
--	--------------	-------------	------------	-------------

The first task of the interviewer was to verify if the telecenter was in operation. This was done by visiting the telecenter. In the event that the telecenter was closed at the time of visit, the interviewers would speak to other households/ businesses adjoining the telecenter to verify if the telecenter was closed only for that particular day or is closed permanently.

In Sri Lanka some telecenters were found to be closed permanently by the interviewers who visited. In total, of the randomly selected 90 telecenters 32 were found to be closed. These were then replaced by another 32 randomly selected telecenters. This issue (of telecenter closure) was not encountered in Bangladesh.

The random selection process of the individuals is as follows. The interviewer at a selected starting point would begin by considering households in the right hand side of the street for interviews. Once at a household, all those who are eligible (based on age and SEC) for the interview were listed down. In the event that there was more than one eligible person, a Kish grid (see Appendix 3) was used to randomly select a person from the household to be interviewed. Firstly the respondents in the household who match the target criteria are listed down in descending order of age. Each questionnaire provided to the interviewer has a unique serial number. The interviewer then cross checks the total number of respondents in the household with the last digit of the serial number to arrive at the respondent to be selected for the survey.

If this randomly selected person was unavailable for the interview at the time of visit, then two more visits were made to attempt to obtain an interview with this person, failing which the household was replaced with another. In urban areas, upon successful completion of an interview, the next two households were skipped before another household was selected for interview (i.e. every third house sampled). In rural one household was skipped (i.e. every second house sampled). The interviews were conducted in the local languages, i.e. Sinhala and Tamil in Sri Lanka and Bengali in Bangladesh.

Even though the interviews were conducted fully randomly (stratified random) in Bangladesh, in Sri Lanka upon commencement of the fieldwork it was found that locating SEC D and E households within the catchment areas using a random methodology was difficult (they belonged to higher SECs). Hence a booster method was used, where instead of conducting interviews randomly, interviewers went in search of households belonging to the criteria (i.e. households that were in SEC D and E).

83% of the residents in the sample in Sri Lanka and 97% of the residents in the sample in Bangladesh were from rural locations. In Bangladesh the definition of urban and rural used are the same as the government definition however in Sri Lanka the definition differs. For the purpose of the survey urban location consisted of Municipal councils, Urban Councils and the Grama Niladhari Divisions that belonged to the former Town councils. The balance was considered to be rural.

4.1.2 Data weighting and extrapolation to the population

Data weighting was carried out only for Bangladesh to allow for extrapolation of results. Since the Sri Lanka data was collected using both random and booster methods, weights were not calculated. The findings in Bangladesh are therefore representative of the BOP population residing within 5km of a telecenter. Weights were calculated by considering the population of the wards that fell in to each of the 5km radiuses around a telecenter. Urban-rural demarcations and gender were similar to the population and hence were not weighted. At the start of the study 300 telecenters were selected for the sample however data from only 275 were used in the analysis as population data for the areas surrounding 25 of those (therefore covering 250 respondents) could not be obtained and hence they

were left out of the weighted sample and not used in the data analysis.¹² However due to the size of the sample used in analyzing (2,750), removing 250 respondents from the dataset is not expected to have any significant impacts on the findings.

4.1.3 Quality checking

In Sri Lanka a total of 94 mock interviews were done prior to field work commencement. Every interviewer (73) and supervisor (21) in Sri Lanka completed a mock interview. In Bangladesh 15 such interviews were done.

4.2 Telecenter operator survey

An operator was defined as a person who is in charge of day-to-day operations of the selected telecenter and interacts with customers; this person could also be the owner or some other senior employee of the telecenter.

The operators were surveyed in order to get a different perspective about the telecenter operations, with the intention of complementing the learnings from the catchment area resident surveys. However, due to limitation of funds, it was not possible to have a representative sample of operators. As such, out of the 90 and 275 randomly selected telecenters in Sri Lanka and Bangladesh (as explained in section 4.1), 20 and 30 telecenter operators (respectively) were selected by the interviewers, based on convenience. Due to the small sample size of the telecenter operator survey, generalizations cannot be made, but the data will be used to illustrate or support the findings from the larger Resident survey.

4.3 Comparison with Teleuse@BOP4

LIRNEasia's findings from its multi-country BOP-representative surveys are used to anchor some of the findings of this study, as well as to validate the samples. The Teleuse@BOP4 survey included 10,154 face-to-face interviews among those who had used, but not necessarily owned a telephone in the previous three months in six countries, including Bangladesh and Sri Lanka. For the purpose of comparison with this study only data from 1,581 from Bangladesh and 804 from Sri Lanka aged 15-40 were taken. Both households and respondents for this study were randomly selected with multi-stage stratified random sampling undertaken to represent the BOP in each country. The fourth Teleuse@BOP study was conducted in 2011.

¹² Nine of those telecenters were located in Dhaka, 8 in Chittagong, 4 in Rajshahi, 3 in Khulna and 1 in Sylhet (none in Barisal).

5.0 Findings

5.1 Demographic and socio-economic details of the sample

5.1.1 Age, gender, geography and SEC

Both country samples are on average the same age¹³, with a mean age of 28 years (Table 4 and Table 5). The proportion of males in the Bangladeshi sample is higher than females, while that in the Sri Lankan sample is equal. Both samples are rural-centric¹⁴, which is reflective of where the selected telecenters are located. The SEC break down of the samples is close to equal, with a higher concentration of SEC E respondents in the Bangladesh sample compared to the Sri Lanka sample.

Table 4: Bangladesh sample details: Comparison of this study versus Teleuse@BOP4 (2011)

	This survey (BOP residing within 5km of telecenter)				Teleuse@BOP4 (2011) survey			
	Mean	Std. Dev.	% of survey respondents	Number of respondents (N)	Mean	Std. Dev.	% of survey respondents	Number of respondents (N)
Age	27.8	7.4			27.4	7.3		
Male			56%	1,529			44%	691
Female			44%	1,191			56%	890
Urban			3%	78			27%	430
Rural			97%	2,642			73%	1151
SEC D			46%	1,258			84%	1333
SEC E			54%	1,462			16%	247

Source: Catchment area resident survey; Teleuse@BOP4 survey.

Table 5: Sri Lanka sample details: Comparison of this study versus Teleuse@BOP4 (2011)

	This survey (BOP residing within 5km of telecenter)				Teleuse@BOP4 (2011) survey			
	Mean	Std. Dev.	% of survey respondents	N	Mean	Std. Dev.	% of survey respondents	N
Age	28.1	7.4			28.28	7.1		
Male			50%	892			39%	314
Female			50%	908			61%	490
Urban			14%	249			15%	122
Rural			86%	1,551			85%	682
SEC D			58%	1,045			74%	592
SEC E			42%	755			26%	212

Source: Catchment area resident survey; Teleuse@BOP4 survey.

The age composition of the samples is very similar to that of the BOP-representative Teleuse@BOP4 findings in each country. The gender compositions are within 10-12% of the Teleuse@BOP4 samples. The urban-rural and SEC breakdowns are more reflective of the areas around the selected telecenters around which the current surveys were conducted.

5.1.2 Education, occupation and income

The Bangladeshi sample was less educated than their Sri Lankan counterparts, with a quarter not having any formal education, and only 19% having completed secondary education (Table 6). Just 4% of the Sri

¹³ At a 0.05 significance level (95 % confidence level), mean age does not differ between the two country samples; however at a 0.10 significance level (90% confidence interval) mean age does differ between the country samples.

¹⁴ According to the definitions of urban and rural given in Section 4

Lankan sample had no formal education while two thirds had completed up to secondary education. On comparison with the Teleuse@BOP4 sample, the current survey respondents are as a whole more educated than those from the Teleuse@BOP4 survey (which was reflected in the SEC breakdowns seen in Table 5).

Table 6: Highest educational attainment: Current survey vs Teleuse@BOP4 survey (% of survey respondents)

	Bangladesh		Sri Lanka	
	This survey (%)	Teleuse@BOP4 2011 (%)	This survey (%)	Teleuse@BOP4 2011 (%)
No formal education	25%	27%	4%	6%
Primary complete	50%	54%	28%	66%
Secondary complete	19%	17%	64%	25%
Tertiary complete: diploma/certificate and Vocational	3%	1%	4%	2%
Tertiary: Bachelor's degree or higher	4%	1%	1%	1%

Source: Catchment area resident survey; Teleuse@BOP4 survey.

Table 7 provides the breakdown of the samples by occupational groups. The Sri Lankan sample had a larger share (1/5th) employed in the private sector. Both country samples had a large segment (more than 50% in each case) that was not employed at the time of survey; they were full time students, housewives or unemployed. As a result, a large segment of the sample in each country (43% in Bangladesh and 57% in Sri Lanka) did not earn any personal monthly income in the month prior to survey.¹⁵ The mean personal incomes earned in the month prior to survey are provided in Table 8. Sri Lankan respondents earned almost double that what Bangladeshi respondents did.

Table 7: Primary occupation (% of survey respondents)

	Bangladesh (%)	Sri Lanka (%)
Self-employed/Business	20%	12%
Employed in govt./semi-govt. sector	1%	4%
Employed in private sector	3%	20%
Full time student	16%	14%
Housewife	36%	29%
Unemployed	4%	14%
Skilled/unskilled worker	9%	0%
Refused	1%	1%
Other	10%	6%

Source: Catchment area resident survey.

Table 8: Amount earned (personal income) in the month prior to survey (USD)

	Bangladesh		Sri Lanka	
	Mean	Standard Deviation	Mean	Standard Deviation
Amount earned in the last month (USD)	58.80	(49.17)	108.09	(62.59)

Source: Catchment area resident survey.

¹⁵ There was a considerable number of respondents (N=373) who, while either being full time students or housewives *did* earn a personal income in the month preceding survey, indicating that they are engaged in some kind of livelihood-earning activity, but they do not consider it their primary occupation. These respondents were mostly found in the Bangladeshi sample.

5.1.3 ICT skills

It appears that while a smaller proportion of the Bangladeshi sample had used a computer before, they were on the whole more confident in using computers to perform various tasks compared to Sri Lankan respondents, despite being less educated as seen above.

Seventy nine percent and 36% of the Bangladeshi and Sri Lankan samples respectively had not used a computer before (Table 9). Those that had used a computer were not very confident in performing several tasks on a computer. When asked about how confident the respondent was in performing five different tasks on a computer (where 1 indicates not confident at all and 5 indicates very confident mean scores over all five tasks were 2.8 and 2.3 for Bangladesh and Sri Lanka, respectively. The significance test results (reported in the final column of Table 9) confirm that at a 99% confidence level, the mean ICT confidence scores are different between the countries on all tasks; it appears that Bangladeshi respondents are more confident in using a computer, particularly with regard to typing letters, using a search engine and making calls over the Internet.

Table 9: ICT skills

		N	Mean	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
Typing a letter or CV (résumé) on the computer	Bangladesh	439	3.4	1.5	.073	0.000
	Sri Lanka	973	2.8	1.7	.054	
Using a search engine to find information	Bangladesh	395	3.0	1.6	.082	0.000
	Sri Lanka	924	2.5	1.7	.055	
Using e-mail to communicate	Bangladesh	366	2.7	1.6	.083	0.000
	Sri Lanka	923	2.2	1.6	.053	
Making a call over the Internet	Bangladesh	386	3.0	1.6	.084	0.000
	Sri Lanka	923	2.1	1.6	.053	
Participating in an online discussion forum	Bangladesh	339	2.3	1.5	.081	0.001
	Sri Lanka	894	2.0	1.5	.051	
Overall mean skill scores	Bangladesh	317	2.8	1.4	.077	0.000
	Sri Lanka	866	2.3	1.4	.048	

Source: Catchment area resident survey.

5.1.4 Household access to technology and services

Seventy percent of the Bangladeshi sample and 77% of the Sri Lankan owned a mobile phone. The Sri Lankan sample had relatively high access to electricity, television, radio, and bank accounts within their households. Computer and Internet access (within the household) was 14% and 8% respectively. Whereas the Bangladeshi sample had comparatively lower access to all of these ICTs and services. When compared to the Teleuse@BOP4 findings, which are representative of the teleusing BOP in each country, the levels of household access are comparable, with the exception of personal mobile phone ownership in Bangladesh, which is higher than in the 2011 Teleuse@BOP4 survey. This might suggest that there has since been some growth in mobile ownership over the past year in Bangladesh, while in Sri Lanka, mobile ownership growth may be slowing.

Table 10: Household access to technology and services: Current survey vs Teleuse@BOP4 survey (% of survey respondents)

	Bangladesh		Sri Lanka	
	This survey (% of BOP residing within 5km of telecenter)	T@BOP4 2011 (% of BOP teleusers)	This survey (% of sample)	T@BOP4 2011 (% of BOP teleusers)

Mobile phone (personal)	70%	52%	77%	75%
Electricity	67%	69%	87%	95%
Television	49%	48%	83%	93%
Radio	10%	11%	73%	91%
Computer or laptop	3%	2%	14%	9%
Internet connection	2%	†	8%	†
Bank account	33%	31%	89%	90%

Source: Catchment area resident survey; Teleuse@BOP4 survey.

†Household-level data not available.

5.2 Telecenter awareness and use

A surprisingly high percentage in the Bangladesh sample had heard of a telecenter (68%), of which 52% had visited a telecenter and used its services (Table 11). Telecenter awareness in Sri Lanka was not as high (just under half of the sample), and usage was at 16% of those aware. In both cases, almost all of these telecenter users had used the one which was sampled for the purpose of this study (respondents were selected from within a 5km radius of these selected telecenters). The frequency of telecenter visits was not very high (Figure 2), with many respondents saying they visit less than once a month or once a month. Few visit more than once a week.

Table 11: Awareness and usage of telecenters (% of survey respondents)

		Bangladesh		Sri Lanka	
		%	N	%	N
Heard of telecenters (% of survey respondents)	Yes	67.5%	1836	45.7%	823
	No	32.5%	884	54.3%	977
Has been to a telecenter and used its services (% of those aware)	Yes	52.1%	957	16.4%	135
	No	47.9%	879	83.6%	688
Has been to the sampled telecenter (% of those aware)	Yes	98.3%	940	92.6%	125
	No	1.7%	16	7.4%	10

Source: Catchment area resident survey.

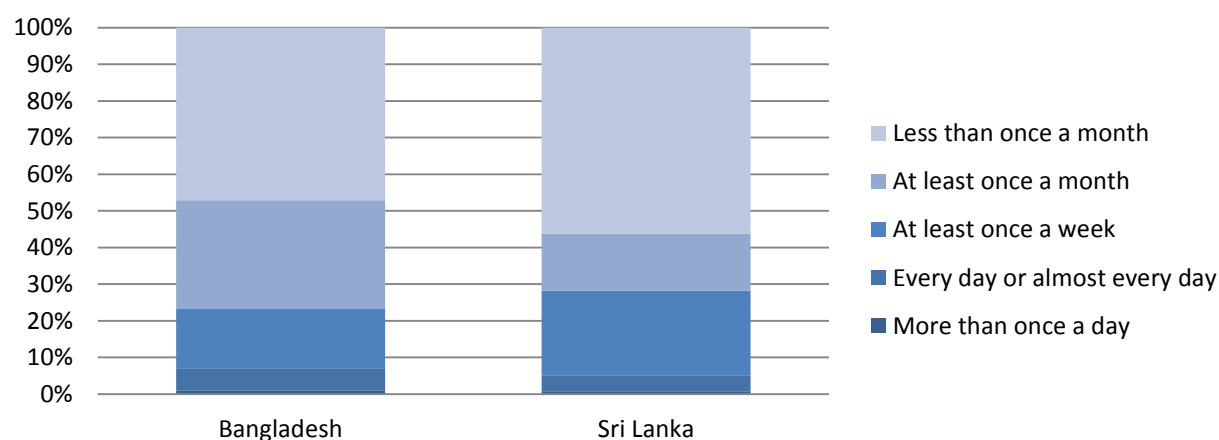


Figure 2: Frequency of telecenter use (% of telecenter users surveyed)

Source: Catchment area resident survey.

Table 12: Telecenter awareness and usage (among those aware): SEC, gender and geographical comparisons

		SEC		Gender		Location	
		SEC D	SEC E	Male	Female	Urban	Rural
Awareness	Bangladesh	74%	62%	82%	49%	83%	67%
	Sri Lanka	50%	40%	46%	46%	27%	49%
Usage	Bangladesh	56%	48%	60%	35%	90%	51%
	Sri Lanka	15%	18%	19%	14%	12%	17%

Source: Catchment area resident survey.

In both countries, the mean age of those who had been to a telecenter was significantly lower than that of those who hadn't at a 95% confidence interval. The mean age of Bangladeshi users versus non-users was 26.8 versus 28.3 while that of Sri Lankan users versus non-users was 24.3 versus 27.5.

Telecenter awareness was significantly higher among SEC D respondents than SEC E respondents at a 95% confidence interval in both countries; usage was significantly higher among SEC D than SEC E respondents in Bangladesh, whereas there were no significant SEC differences on use found in the Sri Lankan sample (Table 12).

Telecenter awareness and usage was significantly higher among males than females in Bangladesh, whereas there were no significant gender differences on awareness and use found in the Sri Lankan sample.

Telecenter awareness was significantly higher among urban respondents in Bangladesh, while it was higher among rural respondents in Sri Lanka. Usage was significantly higher among urban respondents in Bangladesh, while there were no significant urban-rural differences found on usage in Sri Lanka.

28% of telecenter users in Bangladesh and 56% in Sri Lanka also used other communication shops within the locality. The telecenter was the most frequently used communication facility however for 21% and 39% of these respondents in each country respectively. The main reason for choosing to use the telecenter among this group was due to the convenient location (Table 13), and to a lesser extent, their lower cost of service.

Table 13 : Main reason for choosing to use telecenter most often, when another option is available nearby (% who have the option and choose telecenters most often)

	Bangladesh		Sri Lanka	
	%	N	%	N
Convenient location	65.4%	36	46.7%	14
Low cost of services	16.4%	9	16.7%	5
I know the owner / person who runs it	2.9%	2	16.7%	5
Better services offered	4.9%	3	13.3%	4
Better facilities available	8.4%	5	.0%	0
Helpful staff	.0%	0	3.3%	1
Free training	2.1%	1	.0%	0
Other	.0%	0	3.3%	1

Source: Catchment area resident survey.

In Sri Lanka, the type of location that the telecenter was situated in appeared to have an impact on telecenter usage. One of the types of ownership structures of Nenasalas includes the hosting of Nenasalas within religious establishments – this could include a Buddhist or Hindu temple, a Sunday school, a Madarasa, and so on. Among those that have heard of a Nenasala before, telecenter usership is significantly higher among residents who live in the catchment area of a Nenasala which is located in a non-religious establishment (26%; Table 14) compared to those residing near Nenasalas located in a religious establishment (8%). Telecenter awareness among the residents of the catchment areas was not different between religious vs non-religious located Nenasalas.

Table 14: Telecenter usage among those living within the catchment area of Nenasalas located in non-religious vs religious establishments (% of those who have heard of Nenasalas)

		Sri Lanka			
		Location of Nenasala near (in catchment area) where the resident lives			
		Non-religious establishment		Religious establishment	
		%	N	%	N
	Respondent has used a telecenter	25.6%	101	7.9%	34
	Respondent has not used a telecenter	74.4%	294	92.1%	394

Among those who had heard of a telecenter but did not use one, the reasons most cited for not using them was that they had no need for its service (Table 15). The second most cited reason was that they were not comfortable using it. Location and cost were not big concerns.

Table 15: Reasons for not using telecenters (% of those aware of what telecenter is)

	Bangladesh		Sri Lanka	
	%	N	%	N
No need for its service	45%	397	76%	523
Not comfortable using it	20%	172	17%	120
Location is not convenient	8%	70	5%	37
Too expensive	6%	51	1%	4
Since it was introduced newly	30%	264	2%	12

Source: Catchment area resident survey.

5.2.1 Services used and provided at telecenters

The top ten services that were most commonly used by telecenter users in each country are given in Table 16 and Table 17. Photocopying (Xeroxing) was the most commonly used service in both country samples with over 40% of telecenter users surveyed using the service at telecenters. Printing was also popular in both samples. Photography was a popular use in Bangladesh (for example for passport photos, as well as other) and importantly, access to government services (25% of Bangladeshi telecenter users surveyed). Upon closer inspection, this service was used significantly more by male respondents (7.9% of males surveyed) than female (2.2% of females surveyed). There were no significant differences between SEC groups, age groups,¹⁶ and in geography/location. Agriculture/health/law consultancy services were also commonly used at UISCs by survey respondents in Bangladesh.

¹⁶ However the difference in use between age groups was significant at a lower level of confidence (90%).

Table 16: Top ten services used at telecenters by Bangladeshi users (% of telecenter users surveyed) ¹⁷

	%	N
Photocopy (Xerox)	39%	374
Printing	38%	366
Photography (e.g., passport photos)	37%	359
Access to government/state/citizen services	25%	238
Birth registration	10%	98
Agriculture/health/law consultancy	10%	97
Scanning	8%	77
Training programs	8%	74
Mobile phone assistance (e.g., upload of content, etc.)	7%	63
Computer with Internet	4%	34

Source: Catchment area resident survey.

Table 17: Top ten services used at telecenters by Sri Lankan users (% of telecenter users surveyed) ¹⁸

	%	N
Photocopy (Xerox)	44%	59
Computer with Internet	34%	46
Computer (without Internet)	24%	32
Printing	21%	29
Fax	8%	11
Lamination	8%	11
Mobile top-up/reload	8%	11
Training programs	7%	9
Purchase of small items (e.g., stationary, etc.)	7%	9
English course	6%	8

Source: Catchment area resident survey.

In Sri Lanka, computers (with and without Internet) were popularly used by such respondents; Internet use was the most popular use of computers at telecenters, followed by word processing, spreadsheet calculations, file transfer and games (Table 17). These last three uses were more common among the younger age groups. Telecenters were used to access government services by one percent of respondents surveyed.

Table 18: What computers are used for by telecenter users (% of telecenter users surveyed)

	Bangladesh		Sri Lanka	
	%	N	%	N
Typing letters or editing documents on the computer	34%	15	63%	42
Calculations using spreadsheets such as Excel on the compute	5%	2	27%	18
Playing games on the computer	11%	5	21%	14
Transferring files (photos, music, other data) onto/from the	48%	21	25%	17

¹⁷ Full list of services used is provided in Appendix 1.

¹⁸ Full list of services used is provided in Appendix 1.

Scanning	26%	12	1%	1
Printing	28%	12	6%	4
Internet	77%	34	69%	46
Other	3%	1	0%	0

Source: Catchment area resident survey.

Drawing from the survey of telecenter operators conducted as a part of this study, Table 19 shows the top services provided by the telecenters according to the operators surveyed. These numbers represent what services the operators report as being provided, not necessarily what is used. All the telecenters provide access to computers and Internet. Printing and scanning are most of the time also provided. Training programs are also provided by many telecenters. The main difference between the UISCs and the Nenasalas in terms of services provided at the time of the survey seems to be the paid assistance with accessing information and services in Bangladesh and the English courses provided by telecenters in Sri Lanka.

Table 19: Most commonly provided services by UISCs and Nenasalas surveyed as per operators' reports (% of telecenter operators surveyed)

	Bangladesh UISC		Sri Lanka Nenasala	
	%	N	%	N
Computer use	100	30	100	20
Internet	100	30	70	14
Photocopy	57	17	35	7
Printing	97	29	85	17
Scanning	77	23	70	14
Training programs	60	18	85	17
Assistance with access to information and services online (assistance must be paid for)	53	16	25	5
English course	0	0	50	10
Access to government/state/citizen services	20	6	25	5

Source: Telecenter operator survey.

In Bangladesh, UISCs also provide additional services, in partnership with other organizations, for example NGOs, banks, inter alia. The UISC acts as a platform for the provision of other services, government as well as non-government. Such services include Agriculture, health and law consultancy services; mobile banking, etc. UISCs and Nenasalas seem to be equipped with similar hardware, with digital cameras being the only exception, which is available at UISCs.

Table 20 shows the telecenter services that bring in the most number of customers and the highest revenue to as per the operators' perceptions. Computer use and to a lesser extent Internet seems to be the highest in both countries. A significant proportion of telecenters in Sri Lanka claimed that training programs brings in the highest revenue.

Table 20: Telecenter operator's perception of the services that attract the most number of customers and the highest revenue (% of telecenters surveyed).

	Bangladesh UISCs		Sri Lanka Nenasalas	
	Service that brings in largest number of	Service that brings in most revenue	Service that brings in largest number of	Service that brings in most

	customers				customers		revenue	
	%	N	%	N	%	N	%	N
Computer use	57	17	53	16	65	13	45	9
Internet	13	4	23	7	10	2	5	1
Photocopy	7	2	10	3	5	1	5	1
Printing	3	1	3	1	10	2	10	2
Mobile top-up/reload	3	1			0			
Mobile repair	3	1			0			
Training programs	0	0	3	1	10	2	25	5
Photography (e.g., passport photos)	7	2	3	1	0			
Other	7	2	3	1	0		10	2

Source: Telecenter operator survey.

5.2.1.1 Provision of training

Table 18 showed that training was offered by many of the telecenters surveyed: 60% of UISCs and 85% of Nenasalas surveyed. This includes both formal and informal training, both paid and for free.

In Sri Lanka, it is one of the highest revenue attracting services provided. Among those Nenasalas surveyed, 88% have conducted between 1-5 training programs in the last 12 months (Table 21). In Bangladesh, 34% of the UISCs surveyed have conducted more than 6 training programs. The estimated number of people that have been trained in these training programs is given in Table 22.

Table 21: Number of training programs conducted by telecenters in the past twelve months (% of telecenters that conduct any formal computer and/or Internet training programs)

	Bangladesh UISC		Sri Lanka Nenasala	
	%	N	%	N
<i>Number of training programs</i>				
1-2	39	7	41	7
3-5	22	4	47	8
6-10	28	5		
More than 10	6	1		
Can't remember	6	1	12	8
Total		18		17

Source: Telecenter operator survey.

Table 22: Number of people been trained through formal training programs at telecenter in the past twelve months (% of telecenters that conduct any formal computer and/or Internet training programs)

	Bangladesh UISC		Sri Lanka Nenasala	
	%	N	%	N
<i>Number of people trained</i>				
1-20	72	13	18	3
21-50	11	2	29	5
51-200	6	1	18	3
More than 200	6	1	24	4
Don't Know	6	1	12	2
Total		18		17

Source: Telecenter operator survey.

Most of the formal training seems to be paid or a combination of paid and free (Table 23). Official certificates were provided on completion of formal training at 71% of surveyed Nenasalas and 50% of surveyed UISCs. Table 24 shows the organization which endorses the certificate as reported by the telecenter operators.

Table 23: Nature of formal computer and/or Internet training programs provided (% of telecenters that conduct any formal computer and/or Internet training programs)

	Bangladesh UISC		Sri Lanka Nenasala	
	%	N	%	N
Free	17	3	35	6
Paid	67	12	53	9
Both	17	3	12	2
Total		18		17

Source: Telecenter operator survey.

Table 24: Agencies/Institutions who endorsed the formal computer and/or Internet training programs certificate (% of telecenters that issue official certificate for participants who have completed this training)

	Bangladesh UISC		Sri Lanka Nenasala	
	%	N	%	N
Government department or ministry	22	2	25	3
ICT Agency of Sri Lanka		0	50	6
Bangladesh Technical Education Board	11	1		
District Commissioner Office	22	2		
Tertiary and Vocational Education Commission			8	1
Janasetha development foundation			8	1
Sri Bodhirajaramaya – Wetakediya			8	1
Certificate by TNO (Thanak Nirbahi Officer)/ Upazila Nirbahi Officer	33	3		
Bangladesh Development Organization	11	1		
Total		9		12

Source: Telecenter operator survey.

In addition to formal training courses, some operators also provide informal training and assistance to customers in using computers and the Internet. This service is often provided for free (Table 25).

Table 25: Provision of informal help to use computers and Internet by the telecenter staff (% telecenter that provide informal help to users to use computers and Internet)

	Bangladesh UISC		Sri Lanka Nenasala	
	%	N	%	N
Free	44	11	50	8
Paid	32	8	31	5
Both	24	6	19	3
Total		25		16

Source: Telecenter operator survey.

5.2.1.2 Internet use at telecenters

The Internet was used by four percent of Bangladeshi telecenter users surveyed, and 34% of Sri Lankan telecenter users surveyed. The main uses of the Internet were as follows (percentages not reported due to low bases):

- For downloading or watching movies, TV programs, music or so

- For e-mail
- For social networking (Facebook, Hi5, Twitter, etc.)
- For communicating (voice or chat, e.g., using Skype/Yahoo Messenger, etc.)
- To gather other information or general Web browsing
- For playing or downloading video games or computer games
- For education or learning activities
- For other leisure activities

Interestingly, it was seen that Internet use was higher among telecenter users than non-users in both countries.

5.2.2 Telecenter user satisfaction

The majority of telecenter user respondents (more than 75% in each case) in both countries were satisfied with the experience with telecenters, on cost of services (Figure 3) as well as facilities and services offered (Figure 4). The mean responses are as given in Table 26. The difference in the mean responses between the two countries were significantly different on the cost factor, but not on the facilities and services; Sri Lankan telecenter users surveyed were significantly more satisfied on the cost of telecenter services than Bangladeshi ones.

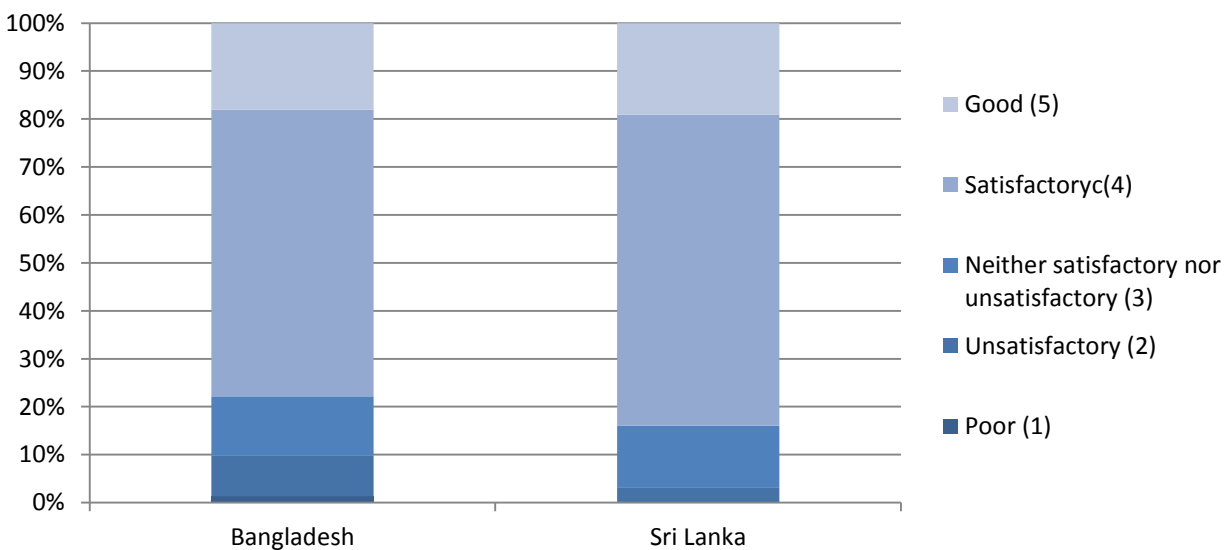


Figure 3: Satisfaction with cost of services at telecenter (% of telecenter users surveyed)

Source: Catchment area resident survey.

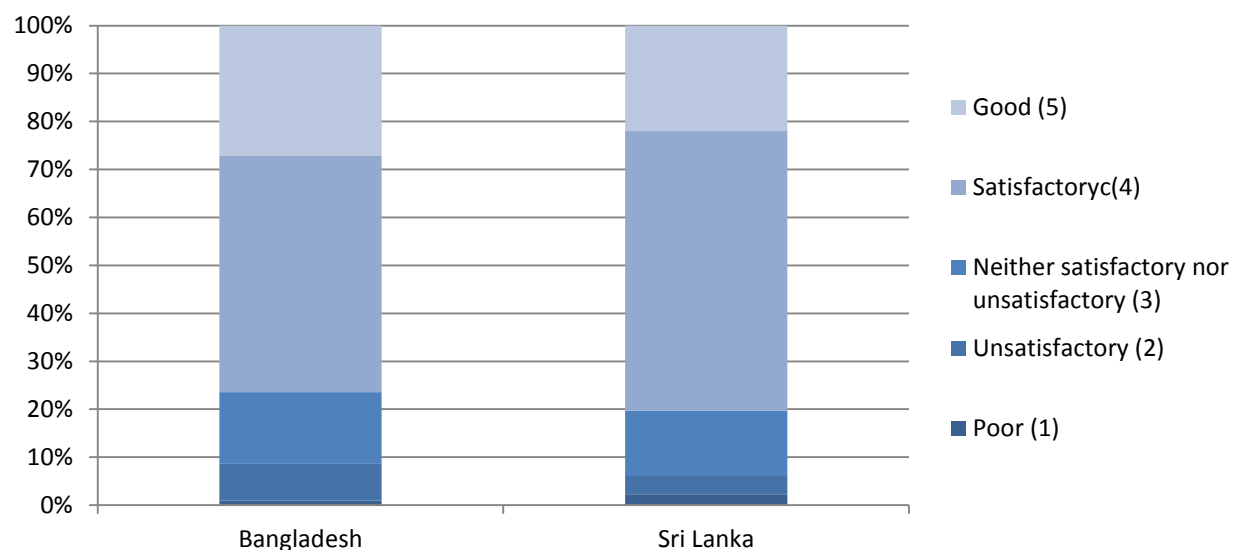


Figure 4: Satisfaction with facilities and services offered at telecenter (% of telecenter users surveyed)

Source: Catchment area resident survey.

Table 26: Mean satisfaction with telecenter experience

	Bangladesh			Sri Lanka		
	Mean [†]	Standard deviation	N	Mean [†]	Standard deviation	N
Cost of services	3.8	(0.9)	952	4.0	(0.7)	131
Facilities and services offered	3.9	(0.9)	947	3.9	(0.8)	132

Source: Catchment area resident survey.

[†]responses on 1-5 scale: 1: poor; 2: unsatisfactory; 3: neither satisfactory nor unsatisfactory; 4: satisfactory; 5: good.

Telecenter users were asked to compare telecenters and mobiles in terms of accuracy of information that one can obtain, how easy it is to obtain information, and costs incurred in obtaining information through either of the two modes. Mean responses (Table 27) indicate that telecenter users in both countries rated telecenters over mobiles on all three aspects, except for the ease of obtaining information by Sri Lankan telecenter users surveyed (where telecenters and mobiles were seen as equal). The differences between country means were statistically significant at a 95 percent confidence level.

Table 27: Mean rating of telecenters and mobiles with respect to obtaining information and knowledge from either channel among mobile owning telecenter users

	Bangladesh		Sri Lanka	
	Mean [†]	Standard Deviation	Mean	Standard Deviation [†]
Accuracy of information obtained	1.4	(.7)	1.8	(.7)
Ease at which you can obtain it	1.6	(.8)	2.0	(.7)
Cost incurred	1.6	(.8)	1.9	(.8)

Source: Catchment area resident survey.

[†]responses on 1-3 scale: 1: telecenter is better; 2: both are the same; 3: mobile is better

Few telecenter users surveyed reported that they had received either of the two livelihood benefits asked about (Table 28) through information or contacts accessed through the telecenters, however 71% of telecenter users in Bangladesh and 21% in Sri Lanka said that they had accessed or obtained information on government services through the telecenter (either directly or through contacts made at the telecenter).

Table 28: Direct benefits of telecenter use (% of telecenter users surveyed)

	Bangladesh		Sri Lanka	
	%	N	%	N
Found a job though information or contacts accessed at telecenter (can be on the phone, Internet or email)	5.2%	49	12.6%	17
Improved their business though information or contacts accessed at telecenter	8.2%	79	5.2%	7
Accessed or obtained information on government services through information or contacts accessed at telecenter	71.1%	680	20.7%	28

Source: Catchment area resident survey.

5.3 Use of government services

As a screening question, all eligible respondents (randomly selected SEC D or E individuals aged 15-40) were asked whether they had had any “interaction” with the government in the preceding twelve months. This could include one or more of the following, with regards to any government-provided service or information, on the respondent’s behalf or on that of someone else:

1. *Obtain information:* To obtain information on the government and its services (e.g., get information on whom to contact, where to go, opening hours, how to do something; or to get a form, etc.)
2. *Obtain/access services:* To use a government service, or “get something done” (e.g., to submit a form, apply for something, lodge a complaint, etc.)

One hundred percent of respondents in both countries had had *some* “interaction” with the government within the said period. Most often it was for themselves (85% or more of the respondents; Table 29); in Bangladesh the second and third largest categories were the respondent’s children, while in Sri Lanka the second largest category was for the respondent’s spouse.

Table 29: On whose behalf government interaction(s) with the government over the preceding 12 months have been (% of survey respondents)

	Bangladesh		Sri Lanka	
	%	N	%	N
Myself	85%	2309	86%	1541
My spouse	7%	183	15%	267
My mother	6%	157	6%	104
My father	3%	91	4%	71
My sister	3%	74	3%	46
My brother	6%	158	2%	33
My daughter	14%	373	8%	143
My son	20%	550	9%	164

Other female family member	3%	79	2%	34
Other male family member	2%	45	1%	23
My friend	4%	109	4%	75
My colleague	1%	14	0%	3
My workplace/employer	0%	8	1%	20

Source: Catchment area resident survey.

In both countries, these interactions were mostly either obtain/access a service, or obtain information and service together (rather than just to obtain information alone). There were few instances where respondents had *only* obtained information (Table 30).

Table 30: Nature of the most recent interaction with government (% of respondents surveyed)

	Bangladesh		Sri Lanka	
	%	N	%	N
To obtain information only	8	218	8	136
To use a government service, or “get something done”	66	1,795	67	1,205
Both	26	707	26	459
Total	100%	2720	100%	1800

Source: Catchment area resident survey.

The types of information obtained in the last 12 months were similar in both countries, and concentrated on a few types. Information on citizen registration was the most popular; health services, financial services and educational/job-related information following.

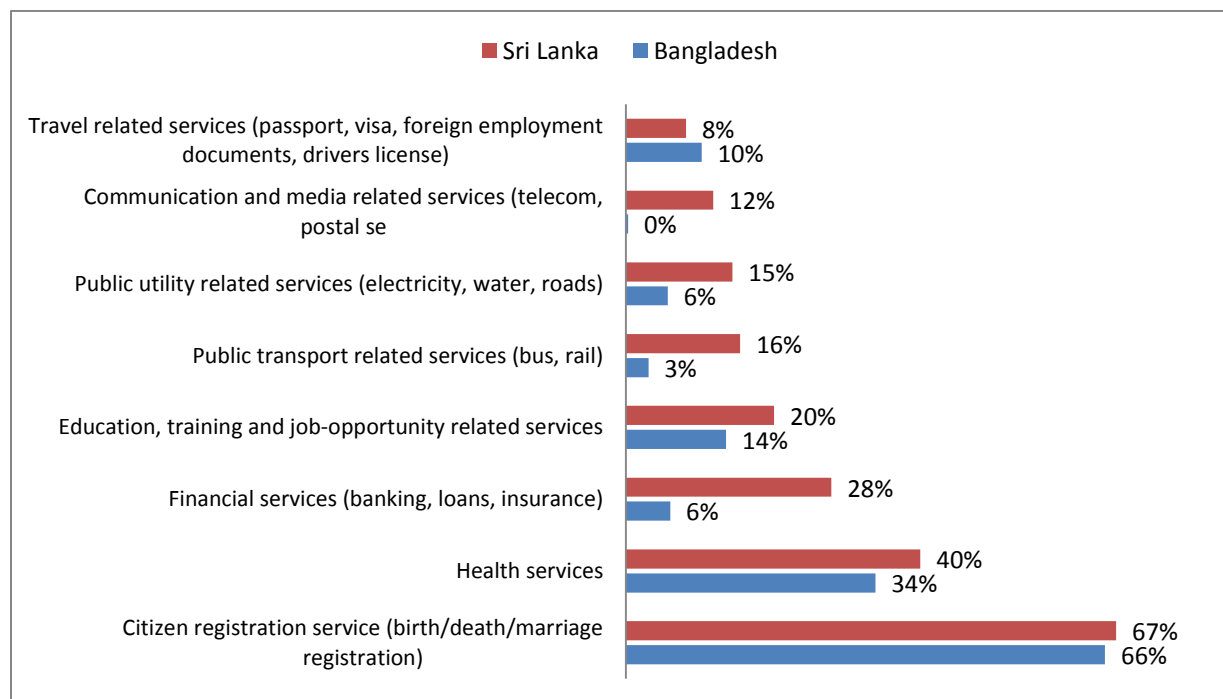


Figure 5: Types of government information accessed in last 12 months (% of respondents surveyed)

5.3.1 Awareness of electronic means of accessing government services

Thirty-eight percent of the Bangladeshi respondents and 58% of Sri Lankan ones surveyed knew that government information and services can be accessed through a mobile and/or the Internet (Table 31).

Table 31: Awareness of possibility of accessing government information and services through electronic channels (% of survey respondents)

	Bangladesh		Sri Lanka	
	%	N	%	N
Yes, through mobile phones	10%	267	31%	563
Yes, through the Internet	6%	150	3%	50
Yes, through mobiles and Internet	23%	614	24%	433
No, this information and services cannot be accessed on a mobile or the Internet	4%	101	4%	72
Don't know	58%	1589	38%	682

Source: Catchment area resident survey.

Table 32: Specific government information and services that Bangladeshi respondents know can be accessed through a mobile phone or the Internet (% of those who are aware of such a possibility)

	%	N
Public examination results	72%	747
Online passport application	7%	69
Birth registration	6%	65
Electricity bill payment	3%	34
Online university admission	3%	34
Health consultancy by Upazila health complex	3%	27
Agriculture consultancy through mobile phone	1%	12
Citizenship certificate	1%	10
Don't know	2%	21

Source: Catchment area resident survey.

Table 33: Specific government information and services that Sri Lankan respondents know can be accessed through a mobile phone or the Internet (% of those surveyed who are aware of such a possibility)

	%	N
GIC call center	10%	109
Health information	10%	107
Job opportunity search/information	10%	107
Birth Certificates (information, forms, etc.)	9%	90
National ID (information, forms, etc.)	8%	81
Passport information, forms, etc.	7%	72
Bribery/corruption complaint submitter	2%	25
Online registration for courses	2%	19
Train schedule information	2%	18
GIC website: information on how to access government service	2%	17
Career path information	1%	11
Issuance of permits (timber transport, tree cutting, animal transport, liquor, pawning, business registration, explosive, furniture transport, animal import)	1%	10
Social Service/support (illness relief, low income relief, casual relief, living relief, elder ID, special relief, self-employment assistance)	1%	9
Language facilitator search and information	1%	8

Don't know	31%	323
------------	-----	-----

Source: Catchment area resident survey.

In Bangladesh, the ability to access public exam results over an electronic means is clearly very well-known by the survey respondents (Table 32). Awareness of citizen registration services (passport application and birth registration) are also higher than other types of services, however still far behind that of public exam results.

In the Sri Lankan samples the Government Information Center (GIC) call center, health information and job-opportunity search and information services are most popular (Table 33), though just 10% are aware of each. Citizen registration services are the next most popular cluster. Approximately one third of Sri Lankan respondents who were aware of the ability to access government information and services electronically were unable to name a specific service. While most government interactions in the past have been through visiting government offices, there has been very limited electronic interactions with government; just 18% of Sri Lankan respondents had ever in the past interacted with the government via calls, versus 4% of Bangladeshi respondents. Six percent in Bangladesh had interacted via SMS versus 1 % in Sri Lanka. Interactions by Internet or email were negligible.

5.3.2 Most recent government interaction

Respondents were also asked about their *most recent* interaction with the government. In both countries, the majority of last interactions were either just to access the service, or to access the service while obtaining information at the same time; information obtaining not a separate interaction.

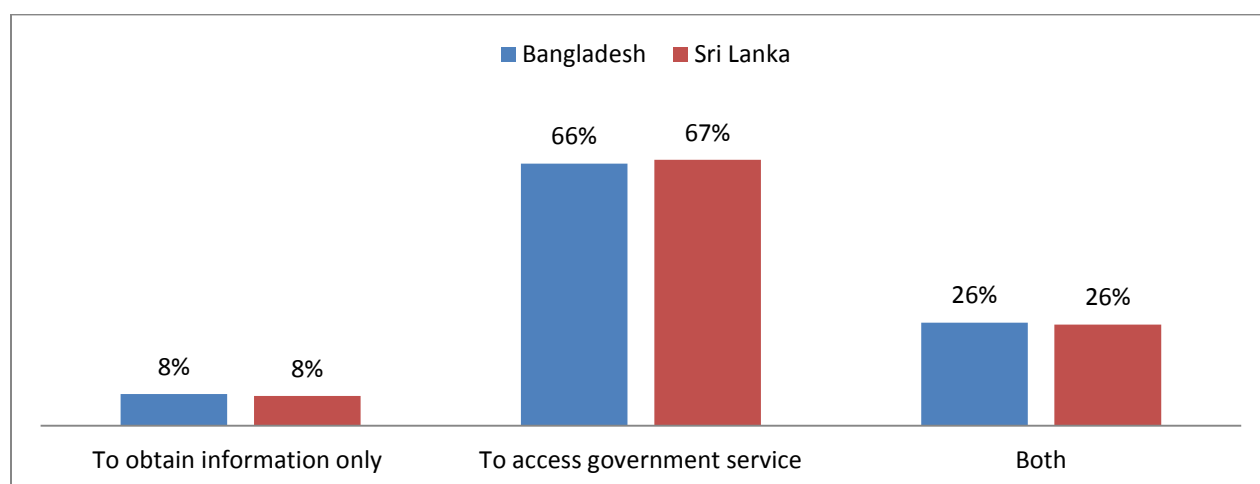


Figure 6: Nature of the *most recent* interaction with government (% of survey respondents)

Table 34: Method of *most recent* interaction with government (% of survey respondents)

	Bangladesh		Sri Lanka	
	%	N	%	N
Visited central government offices in Colombo/Dhaka	1%	38	2%	41
Visited regional government offices	21%	576	12%	220
Visited local government offices	74%	2023	82%	1469
Called government offices on the phone	1%	19	1%	22
Called a government hotline	0%	3	0%	3

SMS	0%	5	0%	0
Fax	0%	0	0%	0
By post	0%	2	1%	10
Visited government website (Internet)	0%	4	0%	7
Emailed government offices/ agencies	0%	0	0%	0
Other	1%	29	0%	4
Don't know	1%	21	1%	24
Total	100.0%	2720	100.0%	1800

Source: Catchment area resident survey.

Almost all of these interactions were through physical visits, either to the local government office or the regional government offices (Table 34) – not an unexpected finding since more than 90% of the last interactions were to access the services (Figure 6). The majority of respondents had obtained the necessary contact information for their recent interaction from friends or relatives; 16% of Bangladeshi respondents had obtained the necessary contact information from a telecenter (UISC) (Table 34).

Table 35: How contact information was obtained (% of survey respondents)

	Bangladesh		Sri Lanka	
	%	N	%	N
From friends or relatives	65.8%	1787	52.0%	933
[From colleagues	7.0%	189	6.5%	116
From a telecenter	15.9%	431	0.4%	7
From the TV or radio	5.2%	141	4.4%	78
From the Internet	0.2%	5	1.1%	20
From a government hotline	0.0%	0	2.3%	41
From a teacher	1%	23	33%	598
Other	5%	141	0%	0

Source: Catchment area resident survey.

5.3.3 Role of telecenters in accessing government services

UISC and Nenasala operators were asked whether they, themselves were aware of electronic means of accessing government services (i.e., through a phone or a computer). All the UISC operators interviewed and 90% of the Nenasala operators were aware of the possibility of accessing government information or services through the Internet. Ninety percent of UISCs and 70% of Nenasala operators have helped someone or a customer access government information or services through the Internet. To understand the extent of government services accessed through the Internet it was divided into obtaining information via the Internet and actually using of government service or getting something done as shown in Table 36Table 35.

Table 36: Purpose of help related to accessing government information or services through the Internet (% of telecenter operators surveyed who had helped others to access government information or services via the Internet)

	Bangladesh		Sri Lanka	
	%	N	%	N
To help them to obtain information only	4	1	36	5
To help them to use a government service, or get something done	7	2	36	5
Both	89	24	29	4

Total		27		14
-------	--	----	--	----

Source: Telecenter operator survey.

Awareness of accessing government information/services through mobile seems relatively lower among telecenter operators surveyed but there seems to be no difference between the two countries with awareness levels at 80%. Seventy five percent of those who were aware in UISCs have helped someone access a government service whereas 69% of those who are aware in Nenasalas have similarly helped others. Forty five percent of the access through mobile in Sri Lanka has been to obtain information only.

Table 37: Purpose of help related to accessing government information or services through the mobile (% of telecenter operators surveyed who had helped others to access government information or services via mobile)

	Bangladesh		Sri Lanka	
	%	N	%	N
To help them to obtain information only	0	0	45	5
To help them to use a government service, or get something done	11	2	27	3
Both	89	16	27	3
Total		18		11

Source: Telecenter operator survey.

It seems that most of the telecenter operators surveyed in both countries are able to assist citizens with electronic citizen services where required.

5.4 Potential for e-gov and m-gov

5.4.1 Low Internet use and awareness

Low Internet use among the target group as shown in Table 38 is one of the main barriers to use of e-gov and m-gov. In Bangladesh only 10% of those surveyed have used Internet whilst 19% have not heard of the Internet. In Sri Lanka the usage numbers are slightly better with 18% of those surveyed having used Internet, the numbers who have not heard of the Internet is at a lower 5%. The numbers of people who have not heard of Internet rises with age (Table 39); 25% of the respondents over the age of 25 have not heard of the Internet whilst the number increases slightly in Sri Lanka to 7%. However under the assumption that government services are likely to be accessed by those over 25 years it is a cause for concern when pushing government services over the Internet.

Table 38: Frequency of Internet use (% of respondents surveyed)

	Bangladesh %	Sri Lanka %
At least once a day	3	5
At least two times a week	2	3
At least once a week	1	3
At least two to three times a month	1	2
At least once a month	2	2
Less than once a month	2	3

Don't use the Internet	71	77
Not heard of the Internet	19	5

Source: Catchment area resident survey.

Table 39: Internet use among those 28 or below and over 28 years old (% of respondents surveyed)

	Bangladesh %		Sri Lanka %	
	Below 28	28 and over	Below 28	28 and over
At least once a day	4.4	1.0	7.1	2.4
At least two times a week	2.5	1.0	4.8	1.2
At least once a week	1.9	0.3	5.6	0.9
At least two to three times a month	1.7	0.1	2.6	0.6
At least once a month	3.5	0.1	3.7	0.8
Less than once a month	2.5	0.5	5.5	1.6
Don't use the Internet	70.4	71.1	67.6	85.4
Not heard of the Internet	13.0	26.0	3.0	7.0

Source: Catchment area resident survey.

5.4.2 Low awareness of electronic and mobile government possibilities

Lack of awareness of government services available through mobiles and Internet is another barrier to uptake in Bangladesh and Sri Lanka (Table 31). Fifty-eight percent of those in Bangladesh and 38% of those in Sri Lanka don't know whether government information and services can be accessed through mobile phones or the Internet. Only 29% of those surveyed in Bangladesh and 27% in Sri Lanka were aware that government services can be accessed through the Internet.

5.4.3 Openness to receiving government information and services over electronic means

When asked, 52% of survey respondents in Bangladesh and 77% in Sri Lanka would like to use the mobile to obtain information about government and its services. The preferred method to obtain information over the mobile is to simply call, other modes like SMS and email are relatively unpopular (Table 40). Seventy five percent of those surveyed in Bangladesh and 31% in Sri Lanka have no formal education or have only primary level education where it may be assumed that they will have difficulty using mobiles for more than calling. Given our target group it can also be assumed that most of these residents do not have smart phones to access the Internet through it.

Table 40: Preferred method to obtain information about government and its services on the mobile (% of respondents surveyed)

	Bangladesh %	Sri Lanka %
Call	87	91
SMS	10	17
E-mail	1	2
Internet (through websites)	7	4

Source: Catchment area resident survey.

The main reason among those who did not want to use the mobile to get information over the phone in both countries was because they felt like they could get more importance or attention by the government by other ways. They also seem to be happy with the current way they were obtaining information (Table 41). Additionally in Bangladesh, difficulty is using a mobile and lack of access to a

mobile easily seems to be issues. In Sri Lanka people seem to think information over mobile are less accurate and less fast.

Table 41: Reasons why residents prefer not to use the mobile to obtain information on Government (% of respondents surveyed who preferred not to use mobile for this purpose)

	Bangladesh %	Sri Lanka %
I'm happy with current way of obtaining information	29	31
Don't have a mobile phone/ easy access to one	15	10
Can get more importance/attention by other way (e.g., go there personally)	45	31
Can get more accurate/reliable information by other ways	4	22
Can get faster responses by other ways	8	16
Too expensive to use mobile	11	19
I want/need a written record of the information	1	13
Have difficulties using a mobile phone	22	10
Other	1	0

Source: Catchment area resident survey.

The numbers slightly decline when looking at peoples' willingness to use a mobile for other purposes such as accessing government services, with 51% in Bangladesh and 71% in Sri Lanka likes to use the mobile for these purposes. The preferred mode through mobiles remains as calling, just like when getting government information over the phone (Table 42)

Table 42: Preferred method to to access government services (% of respondents surveyed)

	Bangladesh %	Sri Lanka %
Call	87	93
SMS	9	14
E-mail	1	2
Internet (through websites)	7	4

Source: Catchment area resident survey.

The reasons for not wanting to use the mobile to access government services remain similar to the reasons mentioned when looking at why people did not want to use mobiles to get information on government services (Table 43).

Table 43: Reasons why residents prefer not to access government services over mobiles (% of respondents surveyed who preferred not to use mobile for this purpose)

	Bangladesh %	Sri Lanka %
I'm happy with current way of obtaining information	28	30
Don't have a mobile phone/ easy access to one	14	9
Can get more importance/attention by other ways (e.g., go there personally)	43	35
Can get more accurate/reliable information by other ways	5	31
Can get faster responses by other ways	8	9
Too expensive to use mobile	13	16
I want/need a written record of the information	2	11
Have difficulties using a mobile phone	23	7

Other	1	0
-------	---	---

Source: Catchment area resident survey.

Confidence of residents who have used a computer on a scale of 1-5 for tasks like searching for information online, emailing is also below average which makes it harder for these residents to get information or communicate with the government.

5.4.4 Satisfaction in accessing government services

At present residents of both countries seem to visit local government when interacting with the government (Table 34). Looking at their last interaction with the government, 73% of the residents in Bangladesh and 76% of the residents in Sri Lanka were satisfied or were happy with the time taken to access the government services (Table 44). In Bangladesh 76% of are satisfied or happy with the reliability of the government information (Table 45) and 74% satisfied or happy with the costs incurred (Table 46) when they interacted with the government recently. Residents in Sri Lanka had similar satisfaction levels, 86% were either satisfied or rated as good at the reliability of the service, 66% were satisfied or were happy with costs incurred for the interaction.

Table 44: Rating of time taken to access the necessary government information or service in their most recent interaction (% of survey respondents)

	Bangladesh %	Sri Lanka %
Poor	4	3
Unsatisfactory	16	13
Neither satisfactory nor unsatisfactory	7	7
Satisfactory	54	53
Good	18	23
Don't know/can't say	0	1

Source: Catchment area resident survey.

Table 45: Reliability of government information gained/service used in their most recent interaction (% of survey respondents)

	Bangladesh %	Sri Lanka %
Poor	3	1
Unsatisfactory	11	5
Neither satisfactory nor unsatisfactory	10	7
Satisfactory	55	59
Good	22	27
Don't know/can't say	0	1

Source: Catchment area resident survey.

Table 46: Costs incurred when dealing with the government or information/services (% of survey respondents)

	Bangladesh %	Sri Lanka %
Poor	4	5
Unsatisfactory	11	7
Neither satisfactory nor unsatisfactory	10	6
Satisfactory	42	44

Good	32	22
Don't know/can't say	0	16

Source: Catchment area resident survey.

Overall both in Bangladesh and Sri Lanka, 78% of the residents were satisfied or very satisfied with their last interaction with the government (Table 47)

Table 47: Overall, satisfaction with the resident's last interaction with the government (% of respondents)

	Bangladesh %	Sri Lanka %
Very unsatisfied	2	3
Unsatisfied	16	16
Don't know	3	3
Satisfied	68	70
Very satisfied	10	8

Source: Catchment area resident survey.

Among those who were not satisfied with the government in their last interaction, visiting the same office several times and government officials keeping residents waiting too long seems to be the main problems for residents of both countries when getting a government information or service. The need to visit too many government offices or departments seems to be another major problem in Sri Lanka (Table 48).

Table 48: Main difficulty in interacting with the government in general (% of those who were not satisfied with most recent interaction with government)

	Bangladesh %	Sri Lanka %
Too many visits have to be made to the same office to get the job done	33	18
Too many departments/offices have to be visited to get one job done	7	20
Not enough of information on procedures and requirements is available in order to get a job done	12	6
Officials keep you waiting too long	20	31
Officials are unhelpful or do not respond	13	17
Bribes have to be given to get a job done	13	1
Have to give too many forms and documents	0	2
Other	1	1
Don't know/can't say	1	4

Source: Catchment area resident survey.

Inability to raise a complaint to the government may be a hindrance to accessing government services. Only 13% in Bangladesh and 21% in Sri Lanka felt that were able to raise a complaint. However over 30% in both countries felt that the complaint was not heard or was not responded to by the relevant authority within a reasonable period of time (Table 49).

Table 49: Timeliness of complaint been heard or responded to by the government (% of those who had made a complaint to the government)

	Bangladesh %	Sri Lanka %
Yes	56	50
No	31	39

Still awaiting response	13	11
-------------------------	----	----

Source: Catchment area resident survey.

5.5 Sustainability

Of the telecenters surveyed in Sri Lanka, most reported that they did not make a profit in the last calendar month, only 25% of surveyed Nenasalas made a profit. On the other hand, 67% of the UISC operators surveyed said their telecenter made a profit. All the UISCs that made profits expected the profit to be sustainable in the long run, whereas only 60% of the profit-making Nenasalas thought the same.

Most of the operators in the Nenasalas identified themselves as the owner. A major difference can be seen when looking at whether the telecenter is the primary source of income for these operators or not. For 87% of the UISC operators telecenter operation is the primary source of income whilst it is only the primary source of income for 15% of the Nenasala operators.

In the UISCs whether or not the telecenter was the operators main source of income seemed to have no relation to how profitable the telecenter was. In Sri Lanka however when the surveyed telecenter was not the primary source of income for the operator, it was less often the case that it was profit making.

Most telecenters surveyed believe better equipment and regular financial assistance are needed to make or increase profits in the long as shown in Table 50. In Sri Lanka telecenters further believe they need to offer more services to be profitable in the long run. This is relatively not as important in UISCs, perhaps because they already offer a wider range of services, but UISCs surveyed do believe that assistance with training is needed in this regard.

Table 50: Requirements to make or increase profits in the long run (% of telecenters surveyed)

	Bangladesh		Sri Lanka	
	%	N	%	N
Regular financial assistance	63	19	55	11
More services to be offered	27	8	65	13
Assistance with training services	60	18	45	9
Better equipment	63	19	65	13
Internet connection	37	11	30	6
Lower cost Internet connection	33	10	35	7
Lower cost of electricity	23	7	30	6
Lower cost of equipment	20	6	25	5
Other	3	1	20	4

Source: Telecenter operator survey.

Other than the initial equipment and a room provided by local governments for the UISCs and hardware for the Nenasalas, about 50% of the telecenters surveyed in both countries have received support (financial or other) from the government or the ICT Agency or UNDP-A2i or microfinance institutions or banks or other NGOs toward the operation of the telecenter. Out of those who did get support, the main form of support was in the form of training and financial assistance as shown in Table 51.

Table 51: Form of support that assisted in the operation of the telecenter (% of telecenters surveyed that receive any support)

	Bangladesh	Sri Lanka
--	------------	-----------

	%	N	%	N
Regular financial assistance	29	5	30	3
Training	41	7	30	3
Troubleshooting	0	0	20	2
Other	29	5	20	2
Total		17		10

Source: Telecenter operator survey.

Looking at the problems faced in providing services by the telecenters, the high cost of equipment and maintenance and repair is the biggest problem in Sri Lanka, followed by insufficient financial assistance from government/ICT Agency/NGO and the inability to repair equipment (Table 52).

Table 52: Problems faced in the operation of telecenters (% of telecenters surveyed)

	Bangladesh		Sri Lanka	
	%	N	%	N
High Internet cost	50	15	35	7
High cost of equipment maintenance and repair	20	6	60	12
Unable to repair equipment	20	6	45	9
High other costs	13	4	30	6
Unreliable electricity supply	87	26	35	7
Insufficient financial assistance from government/ICT Agency/NGO	37	11	50	10
Insufficient technical assistance from government/ICT Agency/NGO	3	1	40	8
Faulty equipment	40	12	25	5
Viruses on computers	57	17	25	5
Not enough demand	23	7	35	7
Others	0	0	25	5

Source: Telecenter operator survey.

In Bangladesh 87% of the telecenters faced problems related to electricity, much higher than the 35% in Sri Lanka. Viruses on computers and high Internet costs are also problems faced by more than 50% of the UISCs. As shown in Table 52, 35% of Nenasalas have had no disruptions in electricity supply whilst a further 25% have had less than 5 disruptions in electricity supply in the month preceding the survey. 70% UISCs have had more than 6 disruptions in the last month in comparison to 40% of Nenasalas.

Table 53: Electricity breakdowns experienced in the last month (% of telecenters surveyed)

	Bangladesh		Sri Lanka	
	N	%	N	%
None	10	3	35	7
1-5	20	6	25	5
6-10	20	6	5	1
11-50	27	8	25	5
More than 50	23	7	10	2
Total		30		20

Source: Telecenter operator survey.

Computer breakages seem to be more of an issue in Sri Lanka than in Bangladesh. Twenty percent of UISCs have had more than 20 computer breakages in the last month (Table 54). Internet breakages seem to be, like electricity a lesser issue in Sri Lanka. 93% of Nenasalas have none or less than 6 Internet breakages in the last month. Whilst over 64% of the UISCs experiences more than 20 Internet disruptions in the last month.

Table 54: Computer breakdowns and disruptions in Internet connection experienced in the last month (% of telecenters surveyed)

	Bangladesh				Sri Lanka			
	Computer breakdowns		Disruption in Internet connectivity		Computer breakdowns		Disruption in Internet connectivity	
	%	N	%	N	%	N	%	N
None	47	14	10	3	40	8	50	7
1-5	27	8	27	8	30	6	43	6
6-20	27	8	37	11	15	3		0
More than 20	7	0	27	8	20	3	7	1
Total		30		30		20		14

Source: Telecenter operator survey.

5.6 Customers

The gravity of the situation in the Nenasalas is evident looking at the average number of customers in the month preceding the survey shown in Table 55. Thirty five percent of the telecenters surveyed claimed they received 1-25 customers in Sri Lanka (less than one per day). Only 19% in Sri Lanka had more than 50 customers in August 2012 in comparison to 77% in Bangladesh.

Table 55: Total number of customers received at sample telecenters in the month of August 2012 (% of telecenters surveyed)

	Bangladesh		Sri Lanka	
	N	%	N	%
1-25	0	0	35	7
26-50	13	4	20	4
51-100	10	3	5	1
101-200	17	5	10	2
201-400	27	8	5	1
More than 400	23	7	0	0
Can't say	10	3	25	5
Total		30		20

Source: Telecenter operator survey.

It is important to note that these reported customer numbers as well as the low perceptions of profitability and future sustainability come from limited (in size) and non-random samples in both countries. However, these numbers together with the resident sample data which indicates low use (Table 11 and Figure 2) even among those who are aware and living in the catchment areas suggests the way Nenasalas are run and exit strategies need to be rethought.

According to surveyed telecenter operators, in both countries, Computer usage brought in the most customers as well as the most revenue. Training programs was a big revenue earner in Sri Lankan telecenters surveyed.

5.7 Voter Identification Card (Bangladesh)

The objective of the Identification System for Enhancing Access to Services (IDEA) Project is to establish a secure, accurate and reliable national ID system that serves as the basis for more efficient and

transparent service delivery.¹⁹ To support the IDEA study, this survey included a few basic questions about Bangladeshi citizens' use of the Voter Identification Card.

Eighty seven percent of Bangladeshi respondents surveyed over the age of 18 have a Voter Identification Card. The age-breakdown shows that the low coverage in the 18-22 age group is dragging the overall average down. Table 55 shows that just 53% of the 18-22 age group currently has a Voter Identification Card, while coverage in the older age groups was 95% upwards. There were no gender or rural-urban differences in Voter Identification Card possession.

Table 56: Age breakdowns of Voter Identification Card possession (% of Bangladeshi respondents surveyed)

		Have a national identity card/voter identification card?			
		Has a national ID/voter ID		No	
		N	% of age group	N	% of age group
Age category	15-17	10	5	194	95
	18-22	311	53	272	47
	23-27	568	95	29	5
	28-32	520	98	12	2
	33-37	374	98	6	2
	38-40	419	99	6	1
	Total	2201	81	519	19

Source: Catchment area resident survey.

Voter Identification Card holders were asked what they needed the card for, to gauge the extent to which they were aware of its benefits in terms of access to services. Other than for voting (76%), the other main services stated were for banking and to access public benefit services (Table 57 and Table 58).

Table 57: Services that needed an ID card to be accessed by citizens, as perceived by respondents (% of Voter Identification Card holders in Bangladesh)

	%
To vote in election	76
Banking purpose	39
To access public benefit services	26
Employment purpose	23
To obtain phone connection / mobile SIM card	22
To access/resolve land management issues	22
Academic purpose	18
Business purpose	15
To obtain passport or other travel documents	14
To access health services	13
To obtain driving license or other authentication and register	6
To access services related to agriculture and trade	6

¹⁹

Other	2
To access legal services	2
To access social welfare services	2

Source: Catchment area resident survey.

Table 58: Services that needed a Voter ID card to be accessed by citizens, as perceived by respondents (% of Voter Identification Card holders in Bangladesh) by gender and age

	Male %	Female %	18-30 Years %	31-40 Years %
To vote in election	77	75	72	83
Banking purpose	38	42	36	45
To obtain phone connection / mobile SIM card	33	8	20	24
To access public benefit services	27	23	23	29
Employment purpose	23	23	28	16
To obtain passport or other travel documents	22	4	14	14
To access/resolve land management issues	21	23	21	23
Business purpose	20	8	15	14
Academic purpose	13	23	22	12
To access health services	11	14	11	15
To obtain driving license or other authentication and register	10	1	4	10
To access services related to agriculture and trade	8	2	3	9
To access legal services	3	2	2	3
To access social welfare services	2	2	2	2
Other	1	4	3	2

Source: Catchment area resident survey.

There were some differences between males and females when asked if they needed a Voter Identification Card to access any services. More males seem to think that a Voter Identification Card was needed to obtain phone SIMs, passports and business. More females seem to think that one was needed for banking and academic purposes. The main differences in services accessed that needed Voter Identification Cards between the two age groups seems to be academic and employment by those aged 18-30 and voting and banking by the 31-40 year olds

When asked if they would like to change any of the details on their card, 91% needed replied that they didn't need to change anything; there were no differences between gender or location. Just 6 percent said they would like to change the photo (Table 59).

Table 59: Changes to Voter Identification Card needed among the people who had one (% of Voter Identification Card holders in Bangladesh)

	Bangladesh %
None	91
Photo	6
Date of birth	2
Address	1
Name	1
Other	1

Source: Catchment area resident survey.

6.0 Discussion

6.1 Extent of telecenter usage

The most striking finding was the higher level of telecenter awareness and use among Bangladeshi respondents than Sri Lankan ones. More than two thirds of the former group had heard of a telecenter compared to just about half of the latter. Of those who had heard/were aware, more than 50% had actually used the telecenter in Bangladesh, compared with just 16% in Sri Lanka.

It is apparent, despite this relatively high awareness and use of telecenters in Bangladesh, that UISCs were not primarily seen as a way to access government services. Just 25% of BOP telecenter users in Bangladesh have actually accessed citizen services at a telecenter, while close to zero Sri Lankan telecenter users did the same. The telecenter was more commonly used for photocopying (Xeroxing), printing, and photography in Bangladesh, as well as computer use (with and without Internet) in Sri Lanka (in addition to the previously mentioned services). The Bangladeshi numbers however are still promising.

While awareness of the *possibility* of accessing government services via mobile phone and computers was present (38% of Bangladeshi survey respondents and 58% of Sri Lankan ones), many were unable to name an actual service that was available; they just knew that the possibility existed.

However, the telecenter was seen to have an indirect effect on the access of government information and services. For example, 71% in Bangladesh and 21% in Sri Lanka said that they had obtained information on government services through the telecenter, either directly or through contacts made at the telecenter. Sixteen percent in Bangladesh said that they obtain contact information for government institutions from a telecenter. In addition, the training programs that are organized by UISCs and Nenasalas may have contributed to improved ICT skills which in turn can enable greater use of e-gov and m-gov solutions. It was observed that telecenter users, compared to non-users had significantly better ICT skills, as measured by the components detailed earlier, namely the ability to type a document, use a search engine to search for information, communicate via email, make calls over the Internet and participate in an online discussion forum.

The following sub-sections look at some of the possible reasons as to why telecenter use, and government information and service use through telecenters could be higher in Bangladesh than Sri Lanka.

6.1.1 Greater need for telecenters in Bangladesh than Sri Lanka?

Bangladesh had an adult literacy rate of 56% in 2009, compared to 91% in Sri Lanka in 2008.²⁰ Therefore, the need for assistance with finding information on government as well as other services and filling in applications would be much greater in such a country. Thus the need for telecenters to act as intermediaries between BOP citizens and various information and services may be much higher in Bangladesh than in Sri Lanka. Furthermore, the BOP penetration of mobiles, computers and Internet is higher in Sri Lanka than Bangladesh, so the Sri Lankan BOP is better positioned to access online information and services independently, and may therefore need to rely less on shared access points like telecenters. Additionally, Sri Lanka is a much smaller country than Bangladesh, so travelling to the capital city or a government office district head quarter is not as difficult as it would be in Bangladesh. Furthermore, the ease at which government services can be accessed (in general as well as electronically) in Sri Lanka may be greater than in Bangladesh; considering the World e-Government Rankings which ranks

²⁰ <http://data.worldbank.org/indicator/SE.ADT.LITR.ZS>

economies on how well they are doing with respect to online citizen services, in 2010, Sri Lanka ranked 111st globally (though second in South Asia), while Bangladesh ranked 134th out of 189.²¹

6.1.2 Effective marketing and awareness-raising of UISCs in Bangladesh?

Awareness raising on UISCs has been carried out on a wide scale through two methods. One is through dramatized infomercials depicting how the UISC services can benefit citizens in typical rural situations. A second is through seminars and training sessions organized at the village level conducted by the District Information Officer.

The 2010 Outcome evaluation conducted for ICTA on Nenasalas indicates that more than 70 % of operators have carried out marketing activities on an individual level (advertising, promotional offers, etc.), but there may be value in engaging in a unified country-wide awareness program to promote access to government information and services through Nenasalas.

6.1.3 UISC acts as a facilitator in the provision of government information and services

As a part of its purpose, the UISC assists citizens to access government information and services. The UISC is situated at the Union Parishad (the lowest administrative unit of the government), and is supported by central administration. The aim of these UISCs has been to enable “citizens to easily and cost effectively access livelihood information and services that affect their daily lives” (UNDP, n.d.a). The UISCs have access to government forms and relevant information through a log-in system, and are equipped to assist citizens in filling up relevant forms and submitting them online.²² Especially where literacy is poor,²³ assistance with filling up forms and submitting necessary documents is very important. The UISC also provides the complementary services (photocopying, scanning, passport photograph, etc.) which allow the citizen to complete the application process in one visit (provided she brings the necessary documentation with her).

6.1.4 Partnerships

UISCs are set up as public-private partnerships (PPPs) with local entrepreneurs. There are over 9,000 entrepreneurs (one male and one female per UISC) currently involved in running the UISCs. Apart from the initial provision of space (for example a room at the UP office), equipment²⁴ and training, the local entrepreneurs are responsible for operating the UISC and making it sustainable. The entrepreneurs provide three types of services: government services, e.g., birth registration, examination results, etc.; information services, e.g., health, agriculture, etc.; and commercial services, e.g., m-banking, life insurance, training, photocopy, etc.) (UNDP, n.d.a).

As a strategy to help UISCs achieve sustainability, the government has engaged in partnerships with various entities in order to enable UISCs to increase their service offering (e.g., m-banking, agricultural extension services, insurance, etc.). The UISCs are effectively acting as platforms for other complementary services which can have spillover effects (bringing in more customers, raising awareness, etc.). As such services become popular demand for UISC services will become popular too.

²¹ <http://unpan1.un.org/intradoc/groups/public/documents/un-dpadm/unpan038848.pdf>

²² Private communication, Asad-Uz-Zaman, 31 October 2012.

²³ Bangladesh had an adult literacy rate of 56% in 2009 (<http://data.worldbank.org/indicator/SE.ADT.LITR.ZS>); compared to 91% in Sri Lanka in 2008.

²⁴ Computers, laptops, printers, multimedia projector, digital camera, webcam and solar panel.

The UISC seems to strike a good balance between being independent from local government but at the same time, being connected to government. UISCs have access to digital content (government service application forms, as well as other digital content²⁵) in order to help provide citizens with government services and information, as well as other livelihood-related information. UISCs are able to submit citizens' application forms directly online, allowing for "one-stop" service. Nenasalas should similarly be equipped to handle such "one-stop" service also.

In addition, the UISCs have access to a highly active blog, which brings together various stakeholders (ranging from the UISC entrepreneurs to the local government administration, to public representatives and policymakers). This allows the entrepreneurs to interact directly with each other for knowledge-sharing and trouble shooting, but also with local government and policy makers to bring citizen concerns and service demands to their attention.²⁶

6.1.5 Location

The physical location of the UISC, provided by the UP office may have a positive impact on perceptions of trust and authority among citizens. While the connection with the UP may evoke a sense of trustworthiness and authority, the fact that the establishment is run on a commercial basis may also make the service more efficient than a government office would otherwise.

It was seen that in Sri Lanka, there was a significant difference in Nenasala usage between the catchment areas of Nenasalas co-located with religious establishments²⁷ versus those which were not (with lower use in the former group). This is a key finding, and has very important implications for the location of future Nenasalas in Sri Lanka.

In any further expansion of UISCs or Nenasalas, the physical location should thus be taken into account if the telecenters are to be promoted as places where G2C services can be accessed. Location adjoining or close to relevant government offices (e.g., a Grama Niladari office in Sri Lanka) would provide a perception of authority and credibility, but also a complementary set of services (photocopying, photography, etc.) for those accessed at that particular government office. The centers should also be located in locations which are easily accessible to the poor.

6.2 Telecenter user characteristics

It was observed that there were certain distinctions between telecenter users and non-users from the survey. Telecenter users were seen to be younger (below 28 years, the median age) than non-users, in both countries.

²⁵ Though at the time of writing, the website which is supposed to contain the information that is available to UISCs (<http://www.infokosh.bangladesh.gov.bd/>) is inaccessible; the information is also supposed to be available to the UISC in CD form however.

²⁶ UNDP reports in its UISC Blog Fact Sheet, an incident where one UISC entrepreneur conveyed a customer's complaint regarding poor service on a mobile health information service on the blog, leading to a multitude of similar complaints being posted, which eventually caught the attention of the relevant officials, prompting them to implement a monitoring system to keep a check on service quality (UNDP, n.d.b).

²⁷ The Authors were unable to obtain this data from ICTA in time for the finalization of this report. Further, the www.nenasala.lk website does not specify if a telecenter is affiliated to a religious institution. However, the authors were able classifying the sampled telecenters as being in "religious" versus "non-religious" locations based on an examination of the name and address of each of the 90 telecenters sampled. In most cases this was straightforward, because the Nenasala's name contained the name of a religious institution in the local language. In a few cases, the authors directly phoned the Nenasala in question to verify religious/non-religious affiliation.

Telecenter users were also seen to be more often from SEC group D (higher income) than E. What this implies is that telecenters are not really reaching the poorest of the poor. This could be due to several reasons, for instance lower awareness of the UISC services or a lower perception of a need for telecenter services, or government services. Governments need to think about how the lower SEC E citizens can be better reached, if not through telecenters, through mobiles. The difficulties faced in locating a sufficient number of SEC D and E respondents to sample within the 5km catchment areas in Sri Lanka, together with the low number of customers reported to be visiting them, also suggest that the telecenters may not be located in the most strategic places if the intention is to serve the poorest in society.

It was also observed that there was a gender difference in telecenter users in Bangladesh. Even though the UISC is supposed to also have a female entrepreneur involved in its operation, there appears to be more males using the UISCs than females (also echoed in the telecenter operators' perceptions of the gender breakdown of customers). There was no gender difference seen in Sri Lanka. The gender bias in Bangladesh needs to be addressed. There may be something that can be learnt from the experience of the Grameenphone Villagephone ladies.

Additionally, it was seen that Bangladesh had a higher percentage of urban telecenter users than Sri Lanka. The proposed expansion of UISCs to very rural areas (via post offices) may be warranted. The issues of the disparities in access mentioned in this sub-section need to be considered however when expanding. Further grassroots marketing may need to be done to raise awareness about how the rural poor can really benefit from access to UISC and government services; in which case, TV and radio may not be the best choices because access to those is low (49% and 10%, respectively).

6.3 Interaction with government

It was observed that every BOP individual surveyed had interacted with the government in some way in the 12 months preceding survey: either to obtain information on government and its services or to access a government service (i.e., get something done). The majority of interactions had happened via physical visits to the government offices (in Bangladesh, this could include the UISC). Most of the time, respondents do not make separate visits or efforts to seek out the necessary information, but accessed the service and information in one interaction. The most popular service types were citizen registration services, health services, financial services (Sri Lanka) and education/training/job opportunity-related service.

Respondents in both countries stated that they were on the whole satisfied with their most recent government interaction. The biggest problem areas were in terms of time taken to get service (in terms of waiting time as well as the number of visits required to get a job done). This points to possibilities of using SMS based services to alert citizens when their service is ready (e.g. documents are ready for collection), so the repeated visits to a government office can be avoided. Similarly, giving citizens the correct information about the service before they visit a government office may help, as was done through the Government Information Center in Sri Lanka. However such improvements may be marginal, if the internal process within the government itself are not reformed and made more efficient.

Many respondents felt that they were unable to raise a complaint to the government if they needed to. Among those who were able to, they had done so in the past by visiting government offices of local representatives and made their complaints. More than half had their matter resolved, while about one third's matter was not resolved; the rest had their matter still pending. This points to an opportunity of using digital methods to lodge citizen complaints.

6.4 The way forward

6.4.1 Barriers to e-gov/ m-gov

The survey findings showed that just one percent of all respondents surveyed had had their most recent interaction with the government over a phone (by phone call). There was no-one whose last interaction had been over email or the Internet. Looking further back into the past (i.e. not just at the most recent interaction) however, there was a slightly higher, but still small overall number who had interacted via electronic means, mostly by phone calls (4% in Bangladesh and 18% in Sri Lanka).

The lack of experience with e-gov and m-gov services together with the poor PC and Internet penetration at the BOP as well as poor ICT skill levels seen earlier, all pose challenges to the success of any e-gov solutions. The widespread use and familiarity with mobile phones however imply that m-gov solutions will be adopted much quicker. The survey results indicate a high level of willingness to interact with government over the mobile (more than 50% in Bangladesh and 70% in Sri Lanka), mostly through calls, and some SMS. Those that did not want to use the mobile for these purposes said so because they didn't feel they could get enough "importance" if they didn't go personally (lack of trust in the systems), they were happy with the current way of interacting with government, or they find using a mobile difficult (Bangladesh) or they felt it could be too expensive.

It seems that m-gov can play a role for the simpler interactions (obtaining information for instance), through reliable, relevant and easy-to-use m-gov applications using voice, rather than text in the short run. The private sector can play a significant role in app-development (Sri Lanka already has an active android community, for instance), if provided with relevant data (e.g., crop prices, public transportation schedules, public exam results, etc.) and APIs by government. The high proportion of the BOP population living within 5km of a UISC which is in possession of a voter ID card in Bangladesh provides a necessary step toward the efficient and transparent delivery of public services via electronic (including mobile) means.

E-gov solutions will be more relevant for the more complex interactions (using the services), where forms have to be downloaded, signed, scanned and submitted, identification documents have to be photocopied, and passport photographs are needed. Given that individual PC and Internet ownership is very low at the BOP, telecenters and possibly other commercial ventures will be able to fill this role. In Bangladesh, the UISCs may have an advantage over commercial or other ventures (being more integrated with the local government system) than Nenasalas.

6.4.2 Sustainability

The issue of sustainability is of paramount importance. Many of the Nenasalas operators surveyed said they did not make an operational profit in the month preceding survey, and many did not expect to make an operational profit in the long run. In contrast, two thirds of the UISCs surveyed made a profit and expected to retain it. Since the telecenter operator surveys in both countries were conducted with small, non-random samples, caution should be taken before interpreting these results, however, together with the data from the resident sample (indicating low awareness and very low overall usage of Nenasalas in the catchment areas) points to some serious issues in terms of the financial viability of many of these telecenters. Several factors need to be examined further including, but not limited to the operational models, physical locations as well as possible exit strategies for non-viable Nenasalas.

As seen in Section 3, non-sustainability has been a key reason for the failure of many telecenter projects. In a 2007 evaluation of 54 Nenasalas operators in Sri Lanka, long term sustainability was a key issue that emerged from the research. Half of the telecenter operators were unsure about their long term

sustainability. The researchers concluded that there was insufficient understanding and concern for sustainability among the operators, partially because the telecenters were housed and operated by religious establishments. In these kinds of set ups, many of the overheads were absorbed by the religious establishments, therefore there was no clear idea about operating costs etc. (ICTA, 2008). Furthermore, it is possible that these types of Nenasalas are run with a more community-based approach, and thus profit making is not seen as a priority. Some attention needs to be paid to improving awareness and emphasis on sustainability among Nenasala operators.

Popular services such as training (beyond basic computing skills) should be promoted, through partnerships with commercial entities (which can certify the coursers) that know the market well, and can tailor training programs to meet the needs of the private sector in order to help improve job prospects of semi-urban and rural youths. Furthermore, given the near ubiquity of mobile phones at the BOP and the increasing affordability of smart phones,²⁸ it could be of value to include training on more advanced skills such as mobile application. This together with the opening up public data by government (as some governments across the globe are also doing), could have profound impacts on the delivery of public services and information to citizens, and economic activity in turn. For example, the release of train schedules in San Francisco, California has led to multiple app developers to develop over ten applications to make travel through the public transit system easier for consumers to choose from— far more than the government would be able to achieve if it focused on presentation, rather than opening up data .

²⁸ See for example, <http://technoholik.com/hot-list/mobile/smartphone/10-new-smartphones-under-10k/3037/5>

7.0 Recommendations

1. Sri Lanka could engage in a unified country-wide awareness program to promote access to government information and services through Nenasalas, particularly emphasizing the benefits possible to the lower SEC groups and older citizens.
2. Sri Lanka could provide Nenasalas with relevant forms and access to online content to better equip them to assist citizens in accessing government information and services; Nenasalas could be provided with the ability to submit forms online allowing for “one-stop” service.
3. The physical location should be considered carefully in the setting up of new telecenters on Sri Lanka:
 - a. Co-locating Nenasalas near or inside Grama Niladhaari offices may help the implementation of a one-stop shop concept. It may also help the perception that the Nenasala is a place for e-Gov services.
 - b. Equally important would be to optimize investments by not installing Nenasalas in areas where other commercially provided services are also available
4. UISC operators need to think about how the lower SEC E citizens can be better reached, if not through telecenters, through mobiles.
5. The gender bias in UISC use in Bangladesh needs to be addressed. There may be something that can be learnt from the experience of the Grameenphone Villagephone ladies.
6. Expansion of UISCs to rural areas may help to narrow the disparity between urban and rural UISC users; to assist in this narrowing, further grassroots marketing may need to be done to raise awareness about how the rural poor can really benefit from access to UISC and government services; in which case, TV and radio may not be the best choices because access to those is low.
7. The opportunity for SMS-based services to alert citizens when their service is ready (e.g. documents are ready for collection) should be explored, so the repeated visits to a government office can be avoided. The need for this is most in Bangladesh.
8. Giving citizens the correct information about the service before they visit a government office may help citizens in Bangladesh make their visits more efficient. A specialized call center can be set up with relative ease to do this (the Government Information Center in Sri Lanka already does this). However such improvements may be marginal, if the internal process within the government itself are not reformed and made more efficient.
9. The possibility of using digital methods to lodge citizen complaints should be explored, to provide BOP citizens a means to launch a complaint to the government to, which they indicate is currently lacking in their lives. .
10. Some attention needs to be paid to improving awareness and emphasis on sustainability among Nenasala operators; exit strategies need to be considered for non-viable Nenasalas.
11. Existing under-utilized Nenasalas should put more emphasis on providing training programs (beyond basic computing skills) in order to improve their financial viability. While this is already happening to some extent with government certified content, it can be done through partnerships with commercial entities (which can certify the couriers) that know the market well, and can tailor training programs to meet the needs of the private sector in order to help improve job prospects of semi-urban and rural youths.
12. Given the near ubiquity of mobile phones at the BOP and the increasing affordability of smart phones, it could be of value to include training on more advanced skills such as mobile application at Nenasalas. This together with the opening up public data by government (as some governments across the globe are also doing), could have profound impacts on the delivery of public services and information to citizens, and economic activity in turn. This recommendation is applicable however, for both countries.

References

- Abraham, R. (2007). Mobile phones and economic development: Evidence from the fishing industry in India. *Information Technologies & International Development*, 4(1), 5–17.
- Aker, J. (2008). *Does digital divide or provide? The impact of mobile phones on grain markets in Niger* (Center for Global Development Working Paper No. 154).
- Bayes, A., J. von Braun and R. Akhter, Village Pay Phones and Poverty Reduction: Insights from a Grameen Bank, Initiative in Bangladesh, ZEF Discussion Papers On Development Policy No. 8, Centre for Development Research, Bonn, June 1999.
- Benjamin, Peter. (2001). Experience of Community ICT Projects: Paper presented at ITU Telecom Africa 2001. Available at http://www.itu.int/TELECOM/aft2001/cfp/auth/4812/pap_4812.pdf
- CKS Consulting Pvt. Ltd. (2009). Teleuse@BOP3: A Qualitative Study. Colombo: LIRNEasia. Available at: <http://lirneasia.net/wp-content/uploads/2008/04/qualitativereport.pdf>
- Cronin, F. J., Colleran, E. K., Parker, E. B. and Gold, M. A. (1993) 'Telecommunications Infrastructure Investment and Economic Development', *Telecommunications Policy*, 17(6): 415-430. Bibliography 351
- de Silva, H., & Zainudeen, A. (2007). Poverty reduction through telecom access at the bottom of the pyramid. Paper presented at Centre for Poverty Analysis Annual Symposium on Poverty Research in Sri Lanka, Colombo, December 6–7, 2006.
- de Silva, H., & Ratnadiwakara, D. (2008). Using ICT to reduce transaction costs in agriculture through better communication: A case-study from Sri Lanka. Retrieved from <http://lirneasia.net/wp-content/uploads/2008/11/transactioncosts.pdf>
- Donner, J. (2006). The use of mobile phones by microentrepreneurs in Kigali, Rwanda: Changes to social and business networks. *Information Technologies & International Development*, 3(2), 3–19.
- Dossani, R., Misra, D.C. and Jhaveri, R. (2005) Enabling ICT for Rural India, Asia Pacific Research Center, Stanford University and National Informatics Centre, downloaded from http://iis-db.stanford.edu/pubs/20972/ICT_full_Oct05.pdf&search=%22ict%20governance%20india%20rural%22, last accessed 30th September 2006
- Ernberg, J. (1998): Universal Access for Rural Development – From Action to Strategies. First international conference on rural telecommunications. Washington, 30 November - 2 December, 1998. ITU
- Frost & Sullivan. (2006). *Social impact of mobile telephony in Latin America*. GSM Association in Latin America & AHCET.
- Gollakota, K. (2008). ICT Use by Businesses in Rural India: The Case of EID Parry's Indiagriline, *International Journal of Information Management*, 28, 4, 336-341.
- Goodman, J. (2005). *Linking mobile phone ownership and use to social capital in rural South Africa and Tanzania*. (Vodafone Policy Paper Series, Number 2).
- Goodman, J., & Walia, V. (2006). A sense of balance: A socio-economic analysis of balance transfer services in Egypt. *Proceedings of the Forum for the Future*, London. Retrieved from <http://www.forumforthefuture.org/files/Asenseofbalance.pdf>
- Hardy, A. P. (1980). The role of the telephone in economic development. *Telecommunications Policy*, 4(4), 278–286.
- ICTA. (2008). Nenasala Interim Survey, Final report March 2008.
- Ivatury, G., & Mas, I. (2008). *The early experience with branchless banking*. (Focus Note 46). Washington, DC: CGAP.
- Jensen, R. (2007). The digital provide: IT, market performance and welfare in the South Indian fisheries sector. *Quarterly Journal of Economics*, 122(3), 879–924.
- Kathuria, R., Uppal, M., & Mamta. (2009, January). *An econometric analysis of the impact of mobile*. (The Policy Paper Series, No. 9, Indian Council for Research on International Economic Relations (ICRIER).
- Kinkade, S., Verclas, K. 2008. Wireless Technology for Social Change: Trends in Mobile Use by NGOs, http://mobileactive.org/files/MobilizingSocialChange_full.pdf
- Knight-John, M., Zainudeen, Z.A. & Khan, A.S (2007) An Investigation of the Replicability of a Microfinance Approach for Extending Telecom Access to Marginal Customers. In [W.H. Melody and A. Mahan \(Eds.\)](#),

- [Diversifying Participation in Network Development: Case studies and research from WDR Research Cycle 3](#) (73-87). Montevideo: LIRNE.NET
- Kwaku Kyem, P. A., & LeMaire, P. K. (2006). Transforming recent gains in the digital divide into digital opportunities: Africa and the boom in mobile phone subscription. *Information Systems in Developing Countries*, 28. Retrieved from <http://www.ejisdc.org/ojs2/index.php/ejisdc/article/viewFile/343/189>
- LIRNEasia. (2011). [Teleuse@BOP4: Preliminary findings](#); Presentation made at the CPRsouth conference, 9 December 2011, Bangkok, Thailand.
- Lokanathan, S., & de Silva, H. (2010). *Leveraging mobile 2.0 in India for agricultural market access*. Retrieved from http://lirneasia.net/wp-content/uploads/2008/05/Mobile-2.0_AgInfo.pdf
- Lokanathan, S., & de Silva, H. (2011, February 1). *Price transparency through ICTs: Livelihood impacts for small farmers in Sri Lanka*. (Working draft).
- McKay, C., & Pickens, M. (2010). *Branchless banking 2010: Who's served? At what price? What's next?* Washington, DC: CGAP. Retrieved from http://www.cgap.org/gm/document-1.9.47614/FN66_Rev1.pdf
- Mittal, S., Gandhi, S., & Tripathi, G. (2010). *Socio-economic impact of mobile phones on Indian agriculture* (ICRIER Working Paper No. 246).
- Molnár, S. and Karvalics, L.Z. (2002). Two Models and Six Types of the Telecentres. A Typological Experiment. ProLISSA (Proceedings of the second biennial DISSAnet Conference). Eds: Bothma, Theo and Kaniki, Andrew. Infuse, Pretoria, 2002 pp. 327-332.
- Morawczynski, O. (2008). *Surviving in the dual system: How m-PESA is fostering urban-to-rural remittances in a Kenyan slum*. Retrieved from http://www.gsmworld.com/documents/Olga_Morawczynski-M-PESA-2008.pdf
- Parker, E. B, Hudson, H. E. et al. (1995) *Electronic Byways: State Policies for Rural Development through Telecommunications*, revised Second Edition, Washington DC: Aspen Institute
- Poblet, M. (2011). Rule of Law on the Go: New Developments of Mobile Governance. *Journal of Universal Computer Science*, vol. 17, no, 498-512
- Roller, L., & Waverman, L. (2001). Telecommunications Infrastructure and Economic Development: A Simultaneous Approach. *American Economic Review*, 91(4), 909-23. Retrieved Thursday, October 19, 2006 from the Econlit database.
- Samarajiva, R. (2009). How the developing world may participate in the global Internet economy: Innovation driven by competition. In *The development dimension: ICTs for development: Improving policy coherence* (pp. 75–118). Paris: OECD.
- Shaffer, R. (2007). Unplanned Obsolescence. Fast Company, September 1 2007. Available at <http://www.fastcompany.com/60302/unplanned-obsolescence>
- Sivapragasam, N. and Kang, J. (2011). The Future of the Public Payphone: Findings from a Study on Telecom Use at the Bottom of the Pyramid in South and Southeast Asia. *Information Technology and International Development*, Mobile Telephony Special Issue. 7(3): 33–44. Available at: <http://itidjournal.org/itid/article/viewFile/759/319>
- Skills International. (2010). Telecentres in Sri Lanka: the Nenasala project: Outcome evaluation report of Nenasala project. Colombo: ICT Agency of Sri Lanka.
- Souter, D., Scott, N., Garforth, C., Jain, R., Mascarenhas, O., & McKemey, K. (2005). *The economic impact of telecommunications on rural livelihoods and poverty reduction: A study of rural communities in India (Gujarat), Mozambique and Tanzania*. London: Commonwealth Telecommunications Organisation.
- UNDP. (n.d.a). *Union Information and Service Centre* [fact sheet]. Dhaka: UNDP.
- UNDP. (n.d.b). *UISC Blog* [fact sheet]. Dhaka: UNDP.
- Vrechopoulos A.P., Constantiou, I.D., Mylonopoulos N. & Sideris I. (2002) 'Critical Success Factors for Accelerating Mobile Commerce Diffusion in Europe' Proc. 15th Bled. Electronic Commerce Conference, Bled, Slovenia, June 17 - 19, 2002
- Wishart, N. (2006). *Micro-payment systems and their application to mobile networks*. Washington, DC: infoDev/World Bank. Available at <http://www.infodev.org/en/Publication.43.html>
- Waverman, L., Meschi, M., & Fuss, M. (2005). The impact of telecoms on economic growth in developing countries (Vodafone Policy Paper, No. 2, March 2005). In *Africa: The impact of mobile phones in the developing world. Moving the debate forward*. Retrieved from http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_2.pdf

Zainudeen, A. & Ratnadiwakara, D. (2011). Are the Poor Stuck in Voice? Conditions for Adoption of More-Than-Voice Mobile Services. *Information Technologies & International Development*, 7(3), 44-59. Available at <http://itidjournal.org/itid/article/view/760/320>

Appendices

Appendix 1: Supplementary tables

Table A1: Full list of services used at telecenters (% of telecenter users)

	Bangladesh		Sri Lanka	
	%	N	%	N
Photocopy	39%	374	44%	59
Printing	38%	366	21%	29
Photography (e.g., passport photos)	37%	359	0%	0
Access to government/state/citizen services	25%	238	1%	1
Birth registration	10%	98	1%	1
Agriculture/Health/law consultancy [Bangladesh]	10%	97	0%	0
Scanning	8%	77	2%	3
Training programs	8%	74	7%	9
Mobile phone assistance (e.g., upload of content, etc.)	7%	63	0%	0
Use the computer with Internet	4%	34	34%	46
Lamination	4%	34	0%	0
Assistance with access to information and services online	3%	31	8%	11
Use the computer without Internet	2%	20	1%	2
Mobile top-up/reload	2%	17	24%	32
Fax	2%	17	8%	11
Postal services	2%	17	8%	11
Agriculture/fisheries/livestock Knowledge services (by Practical action [Bangladesh])	2%	16	1%	1
English course	1%	12	0%	0
Video	1%	10	6%	8
Mobile repair	1%	9	0%	0
Local/national calls	1%	9	2%	3
Mobile battery charging	1%	8	5%	7
Money transfer/money order	1%	7	0%	0
International calls	1%	7	0%	0
Mobile SIM purchase	1%	5	0%	0
Mobile banking	1%	5	0%	0
Bill payments	1%	5	0%	0
Video show on multimedia projector	0%	5	1%	1
Height and weight measurement	0%	4	0%	0
Purchase of small items (e.g., stationary, etc.)	0%	4	0%	0
Video recording and editing	0%	3	7%	9
Solar system management (by IDCOL [Bangladesh])	0%	1	1%	2

Appendix 2: List of services provided by Union Information and Service Centres (UISCs) in Bangladesh

Popular government services (29)

1. Public examination results
2. Online university admission
3. Govt. forms downloads
4. Birth registration
5. Death registration
6. Citizenship certificate
7. Application for land copy (Porcha)
8. All sorts of citizens' petition
9. Online application for passport
10. Visa verification and tracking
11. Online application for driving license and license renew
12. Online application for bond buying
13. Online application for tender
14. Online application for teachers-officers pension
15. Online application for teachers-officers welfare trust fund
16. Life insurance
17. Telemedicine-Skype
18. Health consultancy by Upazila health complex
19. Agriculture consultancy through mobile phone
20. Law services
21. Electricity bill payment
22. E-Purjee information and Gazette
23. Soil test (SRDI) and fertilizer recommendation
24. Stamp selling (vendor license by DC office)
25. Govt. notices and circulars
26. Water test
27. Arsenic test
28. Report writing based on the demands of UP chairmen
29. Logistic supports for various govt. campaigns

Popular private services (28)

1. Email
2. Internet browsing
3. Computer training (certificate by BTEB and DC office)
4. Mobile-Banking (DBBL, Mercantile Bank, Trust Bank, One Bank and Bikash Limited)
5. English learning of British Council
6. Photography
7. Online job application
8. Agriculture consultancy by service camp
9. Health consultancy by service camp
10. Law consultancy by service camp
11. Phone call (land phone)
12. Video conference (Skype)

13. Video recording and editing
14. Height and weight measurement
15. Knowledge services (Agriculture-Practical Action)
16. Knowledge services (Fisheries-Practical Action)
17. Knowledge services (Livestock-Practical Action)
18. Solar system management by IDCOL
19. Compose and print
20. Scan
21. Photocopy
22. Lamination
23. Phone call (mobile)
24. Mobile money load
25. Mobile servicing
26. Mobile SIM selling
27. Nebulizer rent
28. Video show by multimedia projector

Appendix 3: Kish grid

The Kish grid is used to randomly select a person from the household to be interviewed when more than one person in the household is eligible for the interview. Firstly the respondents in the household who match the target criteria are listed down in descending order of age. Each questionnaire provided to the interviewer has a unique serial number. The interviewer then cross checks the total number of respondents in the household with the last digit of the serial number to arrive at the respondent to be selected for the survey. (Annex z)

Listing of respondents in the household who fall in to the target group :

No	Name	Gender	Age
1	ABC	Male	40 yrs
2	DEF	Female	38 yrs
3	GHI	Female	20 yrs
4	JKL	Male	18 yrs
5	MNO	Female	17 yrs
6			
7			
8			
9			
10			

Questionnaire serial number- 1234

KISH Grid

No of people suitable for survey	The last digit of the questionnaire number									
	0	1	2	3	4	5	6	7	8	9
1	1	1	1	1	1	1	1	1	1	1
2	1	2	1	2	1	2	1	2	1	2
3	3	1	2	3	1	2	3	1	2	3
4	1	2	3	4	1	2	3	4	1	2
5	4	5	1	2	3	4	5	1	2	3
6	2	3	4	5	6	1	2	3	4	5
7	1	2	3	4	5	6	7	1	2	3
8	6	5	6	1	2	3	4	5	6	7
9	5	6	7	8	9	1	2	3	4	5
10	1	2	3	4	5	6	7	8	9	10

In this case the number at the crossing point is 3. Hence the 3rd respondent, in this case Ms. GHI who is a female aged 20 yrs will be selected for the survey.

Appendix 4: Survey questionnaires

Questionnaires used for the survey are in local languages (Sinhala, Tamil and Bengali) and cannot be included here due problems with fonts (i.e., unless the recipient/reader of this report has the same fonts, the content becomes unreadable). Therefore the questionnaires are circulated as PDF documents, as a separate attachment, along with this report.

The original questionnaire design was done in English. These questionnaires are circulated with this report as separate attachments in order to keep the length of this report manageable (since one questionnaire contains over 31 pages long). Note however that these English questionnaires were subsequently translated, tested and updated/edited prior to implementation. As such, neither the nuances of the local language nor the subsequent changes are reflected in the two English questionnaires that are being circulated.