Global Impact Study surveys: Methodologies and implementation

Working Paper

GLOBAL IMPACT STUDY

TECHNOLOGY & SOCIAL CHANGE GROUP
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TECHNOLOGY & SOCIAL CHANGE GROUP (TASCHA)

The Technology & Social Change Group (TASCHA) at the University of Washington Information School explores the design, use, and effects of information and communication technologies in communities facing social and economic challenges. With experience in 50 countries, TASCHA brings together a multidisciplinary network of social scientists, engineers, and development practitioners to conduct research, advance knowledge, create public resources, and improve policy and program design. Our purpose? To spark innovation and opportunities for those who need it most.

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GLOBAL IMPACT STUDY

The Global Impact Study of Public Access to Information & Communication Technologies is a five-year project (2007-2012) to generate evidence about the scale, character, and impacts of public access to information and communication technologies. Looking at libraries, telecenters, and cybercafés, the study investigates impact in a number of areas, including communication and leisure, culture and language, education, employment and income, governance, and health.

Implemented by the University of Washington's Technology & Social Change Group (TASCHA), the Global Impact Study is part of *Investigating the Social & Economic Impact of Public Access to Information & Communication Technologies* — a broader CAD$7.9 million research project supported by Canada's International Development Research Centre (IDRC) and a grant to IDRC from the Bill & Melinda Gates Foundation. Managed by IDRC, this project includes the *Global Impact Study of Public Access to Information & Communication Technologies* (this project) and *The Amy Mahan Research Fellowship Program*, led by Universitat Pompeu Fabra, which aims to deepen the capacity of emerging scholars with the goal of increasing the quality and quantity of research on public access to ICT produced in developing countries.

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ABSTRACT

This working paper describes the methodology for the Global Impact Study's five-country surveys of public access ICT venue operators, users and non-users. The surveys collected detailed information about the conditions of public access to ICTs, characteristics of public access users, patterns of usage, as well as information on non-users. Local research teams in Bangladesh, Brazil, Chile, Ghana, and the Philippines implemented the surveys through personal interviews in and around public access ICT venues. The paper describes the overall approaches followed and the methodologies employed as well as useful contextual information regarding the implementation of these surveys in each country.

KEYWORDS

ictd, ict4d, survey, user, open research, open data, methodology, public access

RECOMMENDED CITATION

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1. List of Tables

2. Context

The Global Impact Study represents a multi-pronged effort to assess the impacts of public access[1] to ICTs in a variety of domains, including income, education and health.

Covering eight countries (Bangladesh, Botswana, Brazil, Chile, Ghana, Lithuania, the Philippines, and South Africa) the project research design includes an *inventory* of public access ICT venues in six countries, *surveys* of public access operators, users and non-users in five countries, and *in-depth studies* on a variety of topics in individual countries. This working paper describes the methodology for the five-country surveys.

To achieve the objectives of the project,[2] the project team designed a series of surveys and in-depth studies which were carried out in several countries. The survey instruments were developed through wide consultations with stakeholders. No effort was spared to make them the most comprehensive survey instruments ever designed in this area of research. It is expected that they will serve as references for future activities.

Three distinct surveys were designed and implemented through personal interviews in and around public access venues[3]:

1. A survey of public access venues to collect tombstone information, such as type of venue, location and accessibility, as well as conduct interviews with owners/operators

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[1] Public access was defined as access by the public at large, and included venues such as cybercafés, telecenters and libraries offering access to computers and/or the internet.

[2] The Global Impact Study investigates the following questions:

- What are the social, economic, and political impacts of public access to ICTs?
- What is the magnitude of these impacts and how can we measure them?
- What is the relationship between costs and benefits of providing and using public access ICTs?

For more information on the Global Impact Study and the research design, visit the project website at www.globalimpactstudy.org.

[3] Throughout this document public access venue, public access, and venue will be used interchangeably.

2. A survey of public access venue users over the age of 12

3. A survey of non-users of public access venues, also over the age of 12

The surveys collected detailed information about the conditions of public access to ICTs, as well as characteristics of public access users, patterns of usage, and non-users. The venue/operator survey was designed to gather information on the operational characteristics, design, services and costs of providing public access to ICTs, as well as characteristics of the owners/operators. The main purpose of the user survey was to gather information on user characteristics, usage patterns and perceived impacts of using public access ICTs. The non-user survey gathered information on the characteristics of non-users and the reasons for not using public access venues, information which will serve to compare with users.

The surveys were guided by 14 research questions:

1. What is the demographic profile of public access ICT users and non-users?

2. Apart from public access ICTs, what other information and communication resources do public access ICT users and non-users have?

3. What are the ICT skills and ICT use comfort levels of public access users?

4. Why do people go to public access ICT venues?

5. What are the reasons for non-use of public access ICT venues?

6. What do people do at public access venues?

7. How accessible are public access ICT venues and services to different types of populations?

8. How do the design, services and operations of public access ICTs affect usage patterns?

9. What do public access users see as the impacts of using public access ICTs?

10. What outcomes can be associated with public access ICT use in different domains?

11. Are the outcomes that non-users experience from use of non-public access information and communication resources similar to the outcomes that users of public access ICTs experience?

12. Does public access ICT use have indirect impacts?

13. What is the value of public access ICTs to users?

14. What is the cost of providing public access ICTs?

Local research teams in Bangladesh, Brazil, Chile, Ghana, and the Philippines implemented the surveys. They were all administered through personal interviews and took place in late 2010 and 2011.[4] They have resulted in very rich sets of data, which will be made public to the international research community. This necessitates the adequate documentation of the survey activities, complete with all necessary metadata that would facilitate their correct analytical interpretation. This paper describes in detail the overall approaches followed, the methodologies employed, including the sampling strategies and procedures, as well as useful contextual information regarding the implementation of these surveys. Moreover, it provides additional details concerning the surveys at the individual country level.

[4] Implementation in Bangladesh, Brazil, Chile and the Philippines occurred on roughly the same timeline, while the process in Ghana began several months later. Details are contained in the individual country sections.

3. An overview of the basic approach

The survey activities constitute a very important part of the overall Global Impact Study project, and much effort was dedicated to the development of comprehensive questionnaires to help answer articulated research questions, as well as capture numerous aspects of public access venue ICT access and use. Throughout, the intent has been to reveal findings conducive to the derivation of analytical insights.

The development of the surveys was an iterative process, led by the project's Survey Working Group and incorporating early input and continuous feedback from the larger research team, the local research teams, and many other stakeholders. This process was helpful both in identifying the major areas to be covered in the surveys in a way that they correspond to the over-arching research questions of the study, as well as in generating adequate thinking on specific questions, including detailed exchanges on the pros and cons of alternative options. These reviews were highly productive in diagnosing and correcting problems with the structure of the survey (logic and flow), as well as the questions themselves (comprehension and task-related). As a result, the content of the surveys was revised accordingly and they represent the collective wisdom of all those involved.[5]

The surveys were translated from English to local languages, including Bangla, Tagalog, Spanish, and Portuguese. Moreover, each survey instrument underwent two sets of rigorous testing in each participating country, both cognitive and field testing (See Testing Strategy box on page 6 for an overview). The findings resulted in improvements, which were incorporated into the final instruments.[6]

Selection of the survey countries was both strategic and opportunistic. The main strategic consideration was that the surveys would be conducted in countries where other Global Impact Study activities were taking place. A second consideration was the goal of achieving a regional distribution. Additional rationale for specific countries was linked to their history of implementing public access ICT programs (telecenters in Bangladesh and libraries in Chile) or to local

[5] Details of the various objectives and considerations that shaped the structure and content of the surveys will be appended to the survey instruments for their public release.

[6] The survey methodology was reviewed and approved by the University of Washington's Human Subjects Division.

developments of relevance to the project (growth in lanhouses[7] in Brazil, developments in mobile telephony in the Philippines).

In Chile and Bangladesh the surveys included every region of the countries and can thus be considered truly national. In the case of Brazil, the Philippines and Ghana the surveys were administered in key regions for a variety of reasons. Therefore, the results are applicable to the regions covered by the survey. The detailed national survey plans are presented in section 6.

The overall survey approach was centered on public access venues. Approximately 250 public access venues were surveyed in each country widely dispersed geographically, including in rural areas.[8] The complementary activity of compiling national inventories of public access venues undertaken under the Global Impact Study,[9] while not used as the frame for the venue survey, was useful in arriving at a the final allocation of surveyed venues at the detailed location level, as well as by type, that is, cybercafés, telecenters and libraries.

The surveyed venues served then as the frame for the survey of about 1,000 users in each country. This sample size typically produces national level estimates at the 3% margin of error.

Finally, the surveyed venues also served as the frame for the survey of non-users of public access venues. The latter involved personal interviews with 400 non-users in households located in vicinities around a sub-sample of already surveyed venues, again widely distributed geographically. This sample size typically produces national level estimates at a 5% margin of error. Oversampling of rural households was used in the non-user survey.

[7] "Lanhouse" is the term used in Brazil for cybercafés. The term is derived from LAN, meaning Local Area Network.

[8] Production of maps to show the distribution of sampled venues is underway.

[9] The Global Impact Study inventory was created to provide a baseline for the study's investigation of the impacts of ICTs. A general requirement was that data be collected from existing administrative data sources (e.g., business registries). The composition of these inventories is deemed to be quite good with regards to telecenters and libraries, and less so when cybercafés are concerned. The latter are too onerous to track down, as many operate without licenses, they close and open rather rapidly, and there are no reliable registers for births and deaths. On the other hand, cybercafés clearly make up the vast majority among public access venues and therefore could not be ignored. Due to the inherent limitations in only using administrative sources and the ephemeral nature of many public access venues, the data were of limited usability as the sole sampling frame for the surveys.

Testing Strategy

Two types of testing were conducted by the local research teams: cognitive testing and field testing.

Cognitive Testing

The cognitive interviews were conducted to identify semantic or comprehension problems that could result in misunderstanding of survey questions. They were also intended to unearth instances where language translations had not adequately captured the meaning of terms or questions.

The cognitive testing comprised of two activities: 1) a limited number of "think alouds" during the interview and 2) a debriefing session. Each research team conducted at least 5 face-to-face interviews with randomly selected potential survey subjects at easily accessible venues. Enumerators were asked to pay particular attention to questions that generated the following types of responses:

- Interruption with answer (where the respondent answered the question before the options were read)
- Clarification request (where the respondent asked for clarification)
- Qualified answer (where the respondent gave an answer but also added some language to indicate it may not be the best answer)
- Inadequate or illogical answer (when the answer did not match with the question)
- Don't know
- Refused to answer

The debriefing sessions had two types of questions 1) a set required for validation of specific questionnaire sections and 2) a more flexible interaction where interviewers could probe additional problems items that emerged during the interview.

Field Testing

Field testing focused on all other aspects of the survey process, particularly the questionnaires. Research teams were instructed to pay attention to:

- General flow of the questionnaires
- Whether the skip patterns worked as intended
- The ability of respondents to answer, particularly in questions that involve choices
- Accuracy/quality of the responses (e.g. did respondents have to think a lot, did answers come spontaneously)

In addition to documenting problems, the research teams provided recommendations on how to rectify them.

4. Detailed methodologies

This section explains in sufficient detail the methodologies and the sampling plans across all countries. However, considering that there were three surveys administered in five countries, as well as the diversity in the countries involved, the implementation of the surveys had to be adapted to reflect the individual national context. Thus, even more detail can be found in the country descriptions contained in section 6.

The survey goals as outlined in section 2 dictated the approach to sampling, in particular the selection of sampling sites. Venue operators were sampled inside the venue premises, users were also targeted at venues, while non-users were sought at their homes.

Venue survey

Surveys of public access venues up to this point have been exclusively of the hit-and-miss variety, in the sense that researchers have never had a frame from which to draw a sample. As a result, identifying individual venues to survey was done opportunistically, with no notion of representativeness. Considering this limitation, the Global Impact Study surveys aimed from the outset to be as representative as possible, with obvious implications for the generalization of the findings. While still limited by the absence of truly comprehensive national inventories of public access venues to serve as frames for the drawing of random samples, several steps were implemented along the way to maximize randomness in the selection of venues.

As noted above, the Global Impact Study project, through the participating country teams, did make valiant efforts to construct inventories of public access venues. While the inventories were not relied upon for the sampling approach, they did prove quite useful in arriving at the final sample by providing a rough estimate of the number and distribution of venues by type.[10].

The target population included all public access venues nationally. In the absence of a survey frame, a geographic approach was designed for the selection of venues. This provides the next best alternative to obtain as representative a

[10] As well, the survey activity itself, including mapping at detailed geographical levels, provided valuable feedback to the inventories. Many venues for which addresses existed proved not to exist when visited. This acted as a quality control on the inventories and provided an order of magnitude of their accuracy.

sample as possible, by introducing random selection of cities, towns, villages and rural areas within regions, random selection of districts within selected cities/towns, and random selection of individual venues within districts.

Thus, in each region of a country, cities of various sizes were selected, including rural areas close to them. An initial allocation of the sample was made taking into account the population bases and factoring in that public access venues are heavily concentrated in urban areas. Then, districts within cities were selected and, aided by mapping at times, venues within those districts were identified and randomly selected. Moreover, the sample was distributed by venue type, particularly cybercafés, telecenters and libraries. Initially this was done according to their (approximate) distributions in each country as per the inventories (See Table 1), but ultimately according to the numbers found considering the reality checks on the ground.

An additional reason for the incorporation of the regional dimension in the approach was the pragmatic input from the local research teams regarding practical constraints of travel time and expenses in conducting such surveys in very large, geographically complex, and populous countries. This reason was also behind the selection of rural areas nearby the selected cities and towns, so that the survey work could be completed with small trips.

A certain degree of national adaptation was allowed among countries due to different geographies, population densities and public access venue composition. As well, peculiarities related to the reality of each country ultimately determined national samples (e.g. dangers in Mindanao in the Philippines).

Within this framework, and with the needed stratification by type of venue, every effort was made to maximize randomness of selection of individual venues in every step. Thus, the approach outlined here aimed at balancing information limitations, extraneous knowledge and particularly local, practical considerations and, crucially, analytical benefits.

Sampling

A detailed multi-stage approach was used to arrive at the venue sample in each country, while maximizing random selection throughout. The stages were:

Stage 1: Each country was divided into its **geographical regions** and an initial sample allocation was made based on the respective regional populations. Regions constituted the first stratum, with more populous regions assigned more units, while ensuring adequate representation for the less populous ones. (This was done for each and every region in Chile and Bangladesh and for the surveyed regions in the other countries).

Stage 2: Within each region, **cities** were ranked on the basis of their population and threshold size bands were created: very large, large, medium, and small

towns[11]. Then, one city per size band was randomly chosen, with the exception of the large metropoles. Given the concentration of public access venues, particularly cybercafés, no sampling survey can be attempted in any country that would somehow miss the major metropolitan centers. Therefore, the sample included a take-all part, which contained the megacities in each country: Rio and Sao Paolo in Brazil, Dhaka in Bangladesh, Manila in the Philippines, Accra in Ghana, and Santiago in Chile. (In Bangladesh all seven regional capitals were selected). In all, the number of cities selected ranged between 16 and 25 depending on the country. In addition, **rural areas** (mostly villages) were randomly selected but in a way that they were in proximity to each of the selected cities/towns (e.g. day trips). Thus the second sub-stratum was composed of cities/town and rural areas, and again the sample allocation followed the pattern of their population sizes. All in all, by now the sample was widely distributed geographically.

Stage 3: With the cities/towns and rural areas selected, and the regional samples allocated to each, the same principles were followed one level below. That is, **small areas were identified within cities/towns** using information from the inventories - initially. This was then complemented by detailed maps, online searches and local knowledge to actually draw small sampling areas. Moreover, several actual public access venue mapping exercises were conducted, street-to-street within these small areas when necessary. These resulted in improvements to the inventory information and only then random sampling of specific venues took place.

On top of the wide geographic distribution through the selection of regions, cities/towns and rural areas, and districts within cities, an additional sample allocation was super-imposed by the type of venues. This was largely based on information concerning the distribution of cybercafés, libraries and telecenters from the existing inventories and its implementation was adapted at each national level.

[11] The data used were the latest from the national statistical offices. Size thresholds were adapted nationally due to population differences, e.g. what may be a large city in Chile may be small in Brazil.

Table 1: Final public access venue sample

Country	Cybercafés	Telecenters	Libraries	Other	Total
Bangladesh	99	148	4	0	251
Brazil	192	35	6	5	242
Chile	109	22	71	41	243
Ghana	220	14	4	12	250
Philippines	229	13	18	1	261
Total	849	236	103	59	1247

Survey implementation

Country teams made extensive use of pre-contact for the surveys. Usually a telephone call was made or email was sent in advance explaining the purpose of the surveys and soliciting the cooperation of owners/operators.

Moreover, prior information notwithstanding, country team interviewers were instructed to look out for which public access venues were in scope (e.g. venues must have public access to computing as defined by the project)[12]. If the venue was not open to the public, a new venue was selected and the information was fed back to the inventory. If pre-contact was not possible or the venue was closed, the interviewing team used its discretion on how many times to return.

The surveys were administered to either owners or operators of the venues. Respondents were identified by the enumerator explaining the survey project to the venue contact person or person on duty, and simply asking them to indicate who would be the best person to answer the questions. Provision was made for multiple respondents to contribute answers based on their knowledge of venue operations.

User survey

The rationale for the selection of users was straightforward: being the central object of investigation, they are best found within the places of use, that is, in

[12] This was an important area for verification, since preliminary field visits to some sites revealed that not all venues with computers and internet access on their premises fit the project definition of a public access ICT venue, e.g. in practice, only students are given access to the facilities and not the general public.

public access ICT venues. This was considered the most direct way of identifying users, as opposed to, say, a household survey. The selection of users relied on the already selected 250 venues, with four users in each for a total of about 1,000. The collection method was personal interviews and the age cut-off was set at 12 years of age to include teenage and adult users.

Users were selected randomly in each venue. The sample was dispersed by day of the week and time of day (morning, afternoon, evening/night). If there were only specific times of the day when the venue was open to the public, the interviewer would come back during those times. If the venue was closed for the day or there were no users at the time, the interviewer would try to visit that venue at least once more. The typical random selection approach used by country teams was of the every *nth* person variety. Age was not used as a stratification variable, so that the true age distribution emerges from random selection.

It was attempted to stratify the user sample by gender, as this has been one of the sought after analytical groups by the Global Impact Study. A 50% allocation between men and women was recommended to the country teams. While this was not an issue in Chile and the Philippines, it did not work as well in Brazil and it proved outright problematic in Bangladesh, particularly in rural areas, as women were hard to find. As a result, the user sample is skewed much more towards males, perhaps approaching better the true venue user distribution by gender in the country. Considering the timelines of the survey, this stratification was relaxed in the case of Ghana.

Individual country teams could adjust the detailed sample to their reality, such as the general operating hours and usage patterns of the venues in the country. Other adjustments were also possible. For example, compared to cybercafés, libraries often have limited hours and days of operation, as well as times when computers may not be available for public use. An additional requirement, however, was that selection of individual users was done with a consistent yet random method, which would be implemented uniformly by all teams within a country.

By virtue of the wide distribution of the venue surveys, the venue users surveyed were also widely dispersed and represent a cross-section of users in their countries (Table 2).

Table 2: Final user sample

		Bangladesh	Brazil	Chile	Ghana	Philippines	Total
Gender	Male	786	587	540	754	572	3239
	Female	218	373	455	246	466	1758
	Other[13]	0	4	1	0	6	11
Age	12-15	52	198	82	84	238	654
	16-19	227	271	254	228	384	1364
	20-24	322	222	222	350	263	1379
	25-34	285	177	211	265	106	1044
	35-49	102	72	155	60	47	436
	>50	16	17	73	10	4	120
	Missing	0	8	0	3	2	13

Non-user survey

The survey of non-users[14] was designed and implemented to provide an analytical counterweight to the users, and allow comparisons between the two groups in terms of their demographic and socio-economic profiles, and ultimately establish a baseline for the identification of impacts from venue use. For this reason the non-user population was selected to be in the same areas as the venues where the users were found. This maximizes the desired comparability. In fact, the more narrowly defined are the areas around venues, the better - it makes little sense to find non-users in locations unrelated to the presence of public access venues and their users, as they might have very different characteristics.

The non-user surveys took place after the end of the venue operator and user surveys. Their sample selection involved two stages: first, the selection of areas and, second, the identification and selection of 400 individual non-users. Each of these stages involved two steps in turn.

[13] In order to respect gender identities we gave respondents an "other" gender option in addition to "male" and "female".

[14] The non-user survey was designed around the existence of several groups of non-users, such as never-users of public access venues, ex-public access venue users, ICT users or not, etcetera (see questionnaire).

For the selection of areas, a geographic approach was again adopted to allocate the sample. The first step involved the selection of a sub-sample of the cities/towns surveyed in the venue and user surveys and an equal sample allocation among them. On average 8-10 cities were selected depending on the country. Additional near-by rural areas used in the venue and user surveys were also selected. This was accomplished by using the already-surveyed venues as the frame, given that the precise coordinates of each surveyed venue were by then known. The selection followed the regional patterns already established for the user and venue survey sampling: for each region the largest city was selected, while the others were drawn randomly to represent regions and size bands.

The second step involved the exact mapping of the surveyed venues in each selected city and their groupings into venue-dense and venue-light areas according to the density of venues located in the area (this ranged from 3 to 10 venues per country-defined area, depending on the individual country, and it was not possible in Brazil where only one venue-light area could be identified). Then, one area of each was chosen per city, and the sample was equally allocated among them.

An additional step involved the random selection of rural areas around the selected cities/towns for the list of already-surveyed rural areas in the venue and user surveys. This approach also guaranteed that the same rural areas would be included in the non-user sample, enhancing comparability of user and non-user findings.

The first step of the next stage involved the random selection of households in each of the selected areas, where the non-users would be found. Small areas around the venue-dense and venue-light hubs were chosen by the local research teams. These were delimited either as a few blocks all around the venue(s) or by other natural boundaries depending on the specific geography encountered. Then, a random approach was utilized of picking every *nth* house – or every *nth* apartment in the case of big buildings.

The second step was devoted to the actual selection of non-users. To achieve this, a few screening questions were designed to capture the gender and age composition of all members of the selected household, as well as whether they are public access users or not, and then randomly select an individual household member. The sample targeted an equal representation of males and females and was to be distributed across all age ranges (Table 3). To obtain the desired age and gender distribution of the non-users, that is, resembling the non-user population at large, specific guidelines were developed for the research teams (e.g. follow the sequence: youngest male, oldest male, youngest female, oldest female)[15]. The non-user survey was also conducted by means of personal interviews among individuals 12 years of age and older, following a consent script.

[15] Judging from the distribution of the non-user samples, these worked quite well.

The samples of non-users in rural areas were doubled in size. The choice to have proportionately larger samples in rural areas than in the venue and user surveys was justified on the grounds that these areas have a higher concentration of non-users and, considering the relatively small absolute number surveyed it is sensible to get more responses from them - without losing much from the comparatively lower numbers in the urban centers, but still absolutely higher, as the differentiation of opinions was not expected to be that big.

Table 3: Final non-user sample

		Bangladesh	Brazil	Chile	Ghana	Philippines	Total
Gender	Male	200	202	154	172	200	928
	Female	200	197	245	223	200	1065
Age	12-15	41	25	25	18	54	163
	16-19	80	34	42	49	32	237
	20-24	73	50	43	73	44	283
	25-34	92	91	58	118	68	427
	35-49	76	90	113	88	87	454
	>50	38	110	103	54	115	420
	Unknown	NA	NA	16	NA	NA	16

5. Implementation challenges and mitigation strategies

Challenges always emerge in survey-taking activities. It was therefore anticipated that a large-scale undertaking such as the Global Impact Study, with three different survey instruments and target populations, administered across five very different countries and over several months, would encounter its fair share. So, mitigation strategies were put in place to address them. These were further enhanced by the competent and proactive local research teams and their ownership role in the project.

Some of the challenges were of the usual variety in survey-taking, including logistics of travel across regions, scheduling interviews, stratifying the sample or soliciting respondent cooperation. Others were specific to the Global Impact Study surveys, such as how to arrive at the detailed local samples of venues in the absence of a survey frame. Some among the challenges were of a more horizontal nature, cuttings across countries, and they are summarized below. Others were specific to each country and they are included in the country sub-sections that follow, as they provide pertinent and useful information for the whole exercise.

Survey instruments and response

The questionnaires were designed to be comprehensive and address the plethora of research questions, not with simplicity in mind. The questionnaires for venue operators and users were long and with a rather complex skip pattern. As well, they included inevitably some questions known to be sensitive, such as financial matters. Therefore, securing the cooperation of the respondents was not taken for granted.

In addition to using the cognitive and field testing to allow avoidable problems to surface, one of the mitigation strategies implemented by the research teams was in the form of rigorous training of the enumerators, for each type of survey. This resulted in a very good understanding of the project in its totality, and each survey instrument in particular, by the great number of enumerators, familiarity with the content and its context, which was reinforced through mock interviews, and readiness to explain the reasons behind this work and address multiple respondent concerns.

An additional strategy included systematic pre-contact of venues, in the form of telephone calls or emails – frequently repeated as the date of the interview approached. This helped tremendously to solicit their cooperation and that of their users. Moreover, in most surveys and countries small gifts were typically offered to the respondents as compensation for their cooperation. These included free air-time, something appreciated by both venue owners/operators and users.

Overall, the surveys worked quite well. Still, at times issues remained. For example, many young people, particularly in the Philippines, are neither enrolled in school nor working. Nevertheless, they would not admit they are school drop-outs. This necessitated adjustments in the categories of the datasets. All such issues are being documented and will be made available as metadata to the public data.

The transient nature of many public access venues

The inventories built were deemed incomplete to serve as survey frames, mostly because of cybercafés. They were however used elsewhere, including as the starting points in identifying individual venues from which to draw a random local sample of venues. For instance, in Brazil the inventory was used to extract a list of venues for each city/town with sub-lists of venues by micro-region. At the same time, enumerators realized that many venues in the lists no longer existed or were closed temporarily. Similar experiences were had by all research teams.

In the Philippines, about 22% of cybercafés in the list had already closed - information that was corroborated by key informants, such as neighbors or knowledgeable persons in the area. Other venues were not found at the existing addresses or within the surrounding areas. In Chile 18% of public access venues originally shortlisted were not available when implementing the survey. In most cases, they were permanently closed; in fewer instances they were closed temporarily. In Bangladesh too many venues from the lists were found closed for good, while others were temporarily closed during the survey. There was a variety of reasons for such incidents, including: venues not open for public access to ICTs at the time of visit, power outages or absence of internet signal, computers for repair or replacement, computers used by employees of the local government, government administration firing previous staff and hiring new, telecenters unable to pay the ISP. On the flip side, there were a few instances where venues were found without being in the lists. For instance, a couple of telecenters were operating in Mindanao contrary to official reports.

As a mitigation strategy, oversampling was done ahead of time to compensate for venues that would not be found. As well, extensive pre-contacts were done to facilitate both sampling and solicit the cooperation of the owners/operators.

An additional mitigation strategy specific to the drawing of the sample was in the form of mapping, when necessary and feasible. Through this difficult exercise, the research teams searched online for venues, walked the neighborhoods, asked other owners, users, and non-users and mapped public access venues within certain localities, something which helped clean up the inventory lists and greatly assisted in the drawing of a random sample.

Respondent buy-in

With respect to owners/operators of public access venues, in addition to securing their participation it was challenging to get their permission to interview users as well. In Brazil, enumerators were not easily trusted by operators. Operators were

concerned with authorities that check for venue licenses, tax payments, software licenses, under-age users or simply concerned that enumerators would bother their customers (particularly in the case of commercial venues).

Telecenters and libraries were generally more cooperative, yet not hassle-free. In the case of telecenters that belong to government networks, operators would not respond until they received permission from local governments. In some instances, such processes introduced delays in the collection schedules, in others they never materialized (see sub-section for Brazil).

In all countries, there were areas where people are suspicious of enumerators – or strangers generally. This was true for the users but even more so for the non-user surveys, which involved knocking at people's doors.

Mitigation strategies and incentives included hiring local people as much as possible, a well-rehearsed introduction, small gifts (from a box of chocolates in Brazil, to mugs or a token amount of money in the Philippines, t-shirts in Bangladesh, pocket calculators in Chile, and internet vouchers in Ghana). Moreover, there were instances where project uniforms worn by enumerators (Brazil) helped to give an aura of importance and an identity to the activity. Finally, in many areas local advisors were recruited to help open doors (Philippines). Enumerators visited the barangays (village) prior to the surveys and recruited barangay officials who accompanied them. This was very helpful in facilitating the introduction of the survey, finding the location of households, and recruiting interviewees.

Sampling female users

As discussed in above in section 4, it was not possible to get equal gender representation in respondents for the user survey in all countries. Chile and the Philippines were able to come closest to the sought distribution, but overall it would appear that public access venues tend to be patronized significantly more by males than by females.

Private space

Finding private spaces in venues to conduct interviews was also challenging, particularly in lanhouses, other cybercafés, and for-profit telecenters (for example, the latter are located in very small rooms in Bangladesh). For venues located in malls or public squares, enumerators could invite the user to respond the questionnaire in a private space, even though in many cases this space would not be quiet. Many users did not feel comfortable to go somewhere else, especially when it involved a male interviewer and a female respondent.

The context between urban and rural settings is different. In rural areas the venue remains mostly silent and there is hardly a sizeable gathering of users; in urban areas, public access venues are typically busy and at times overcrowded.

In the household survey, enumerators were rarely invited inside people's homes and the surveys were conducted at the entrance/gate or outside, in a porch or yard.

Other

Different issues arose as well, ranging from those related to the earthquakes in Chile, to frequent (if not daily) power outages in Bangladesh, inclement weather or unrest in the Philippines. For instance, enumerators were to conduct interviews in the barangays of Batangan and Barobo in Valencia, Mindanao but at that time, due to political conflict, the situation was considered critical and the area a hot spot. Thanks to local knowledge, they opted to proceed to Batangan only. Likewise in another area, Cagayan de Oro City, the enumerators did not proceed to the interior of Lapasan, which was not considered safe at that time.

An anecdote pointing to how challenges can be compounded in field work is borrowed from a Philippines' research team report:

> "In Luzon I, the rural counterpart for Baguio City is Atok, Benguet. However, due to the recent rains over the area, the roads going to Atok have become dangerous. An alternative rural area was sought, and the municipality of Tuba, which was nearer Baguio City and less perilous roads, was chosen. However, upon visiting Tuba, our enumerator learned that the community eCenter (CeC) in Tuba was already closed and that there are no cybercafés open in the area. One visitor in the municipal hall was a government employee from Atok who said that the CeC in Atok has been closed for several years already. We have chosen the municipalities in Dingras/Batac in Ilocos Norte to replace the CeC sample for Atok (rural area)."

6. Country details

The local research teams in each country submitted detailed reports on several aspects of the survey implementation process and experience. The following are largely extracted or adapted from these reports.

Bangladesh

Venue and user surveys

Bangladesh is a small country with a territory of only 147,570 km² but quite populous at more than 160 million in 2010. The country is geographically divided into seven administrative divisions: Barishal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpu and Sylhet. The venue and user surveys were conducted in all divisions from September 21-October 21, 2010. The country team in Bangladesh managing and conducting the surveys was the Development Research Network (Dnet).

Furthermore, the divisions are sub-divided into 65 districts, which in turn contain 7 city corporations (division capitals) and 197 municipalities. Using population statistics, these areas were distributed in three size categories: large (>100, 000), medium (50,000-100,000) and small (<50,000). There were 18 large such areas, 42 medium and 136 small. In three divisions, Barisal, Khulna and Sylhet, there are no large municipalities other than the city corporations of the same name. The latter were all included in the sample together with four more large cities, one for each of the other four divisions where they existed – randomly drawn. In addition, one medium and one small municipality per division were selected – also randomly. Thus, 25 municipalities in total were included in the sample.

Considering the situation in Bangladesh, each of these municipalities includes both urban and rural[16] areas. To determine the sample allocation for the selected cities and municipalities, including the decomposition between urban and rural areas, the distribution of (the 1,550) public access venues in the inventory was used to arrive at a proportional allocation, including the ratio of urban-rural venues in each district (public access venues in Bangladesh are located both in urban and rural areas almost in equal proportions).

[16] According to Bangladesh Bureau of Statistics, areas where there is no centralized water supply and sewage system are considered as rural areas.

Table 4 shows the final sample distribution of venues by city/municipality, size, and rural areas.

An additional step took place to identify individual venues in the selected locations, again based on the inventory. The required number of venues was drawn using a table of random numbers. The taxonomy in the inventory also identified three types of venues: libraries, cybercafés, and telecenters. 117 cybercafés and 132 telecenters were included in the sample from which to randomly draw venues. In the final stage of selection it was found that most libraries did not have public access - only three satisfied the criteria, two of which were included. The final sample included 99 cybercafés, 148 telecenters, and 4 libraries.

Final adjustments were made during field work.

Table 4: Sample of public access ICT venues in Bangladesh

Division	City	# of Venues	Total
Barisal	Barisal	6	10
	Jhalokathi	2	
	Patuakhali	2	
Chittagong	Bandarban	2	71
	Chittagong	32	
	Comilla	25	
	Noakhali	12	
Dhaka	Dhaka	49	79
	Gopalganj	4	
	Kishoreganj	10	
	Tangail	16	
Khulna	Bagerhat	9	30
	Jessore	13	
	Khulna	8	
Rajshai	Bogra	9	22
	Jaipurhat	2	
	Pabna/Bera	5	

	Rajshahi	6	
Rangpur	Dinajpur	7	28
	Gaibandha	10	
	Nilphamari	5	
	Rangpur	6	
Sylhet	Habiganj	3	11
	Moulvibazar	3	
	Sylhet	5	
BANGLADESH		**Total**	**251**

Non-user survey

This survey was implemented from March 1-April 5, 2011. The household sampling procedure involved three stages. In the first, 10 cities were selected from the 25 in the venue and user surveys. To cover all regions of the country all seven division capitals were selected: Barisal, Chittagaong, Dhaka, Khulna, Rajshahi, Sylhet and Rangpur. In addition, Tangail, Comilla and Jessore were randomly selected among those cities previously included in the venue/user surveys, from the divisions of Dhaka, Chittagong and Khulna respectively.

In the second stage each selected city was divided into venue-dense and venue-light areas. The former had 4-5 venues close together. The densest area was selected as was a venue-light area at random in each city.

Finally, in the third stage, rural venues close to the ten cities were selected, again among those already surveyed in the venue/user surveys. Rural areas were oversampled. The final sample allocation is shown in Table 5.

Table 5: Sample of areas for non-user survey in Bangladesh

Division	City	Area	Type	Individuals	Total
Barisal	Barisal	Sadar Road	Venue-dense	18	40
		South Choke Bazar	Venue-light	18	
		Rupatoli	Rural	4	
Chittagong	Chittagaong	O R Nizam Road, GEC Moor	Venue-dense	18	40

		Hathazari Sadar	Venue-light	18	
		Anowara Sadar	Rural	4	
	Comilla	Sadar Dakkhin	Venue-dense	18	40
		Nabinagar Road	Venue-light	18	
		Borura	Rural	4	
Dhaka	Dhaka	Mirpur	Venue-dense	18	40
		Panthapath	Venue-light	18	
		Keraniganj	Rural	4	
	Tangail	Victoria Road	Venue-dense	18	40
		Gorai, Mirzapur	Venue-light	18	
		Bhuapur Bazar	Rural	4	
Khulna	Jessore	Jessore, City	Venue-dense	18	40
		Jhikorgacha	Venue-light	18	
		Chachra	Rural	4	
	Khulna	Khulna City	Venue-dense	18	40
		Dowlatpur	Venue-light	18	
		Batiaghata	Rural	4	
Rajshai	Rajshahi	Durgapur Bazar	Venue-dense	18	40
		Keshorhat	Venue-light	18	
		Pochamaria	Rural	4	
Rangpur	Rangpur	Station Road	Venue-dense	18	40

		Gangachora	Venue-light	18	
		Peergacha	Rural	4	
Sylhet	Sylhet	Mirer Moidan Point	Venue-dense	18	40
		Tajpur	Venue-light	18	
		Sylhet Sadar	Rural	4	
BANGLADESH				**Total**	**400**

The distribution of the households around a public access venue was not same in all venue-dense, venue-light and rural areas. Considering the geographical distribution of households, enumerators were trained to consider the public access venue as the center of a circle and select households within a radius of 200-300 meters, select the household nearest to the center and every 7th-8th household afterwards. Adaptations had to be implemented as in many cases venues are located in a market (village market in the case of rural areas) and residential areas may not exist in all sides around them.

The selection of individual non-users also involved three stages. In the first, enumerators collected the necessary information (mainly name and age) for all household members. Then they excluded venue users and those under 12 years of age. Finally, the remaining non-users were grouped by age and gender so that a choice according to the designated groups could be made.

Operational procedures

A three-day training session was given to the 24 enumerators before the implementation of the venue/user survey. Enumerators worked 7 days a week to capture temporal variation of users, including evenings, Thursdays and Saturdays which are peak times. Recruitment of respondent at venues was random and it took 5-10 minutes. In a few cases they had to return to the venue as there were not enough users at the time.

Pre-contact was made with venue owners/operators in the form of emails and telephone calls. The purpose and process of the surveys was explained and information regarding the existing condition of the venue as well as whether it is open was obtained. Following the final selection of the sampled venues, a follow-up call was made to inform them of the probable date of visit. At that time, most owners/operators requested that the research teams also call the day before the survey date. This enabled them to inform their users and encourage them to take part.

Venue owners/operators and user respondents were given t-shirts as compensation (approximate value $US 2).

Challenges

While no major problem was encountered in locating venues thanks to the pre-contacts, locating all venues in the pre-selected sample list presented difficulties. In a few instances, the existing information was not accurate. Other times venues were temporarily closed during the survey for a variety of reasons - even though the individual contacted had indicated that it would be open. In some cases owners/operators refused to participate. Having drawn extra sample helped to make substitutions.

Soliciting the cooperation of users did not cause any major problems either. However, it did not prove possible to find enough females to come close to the initial 50% target. Generally, they frequent public access venues much less than males. Anecdotal evidence from the Bangladesh team suggests that in some areas social norms are not conducive to such activities.

In the majority of interviews finding private space was a challenge. Particularly cybercafés and for-profit telecenters are usually located in small rooms in Bangladesh. Urban and rural locations had different contexts. In rural areas venues remain largely silent and there is hardly a huge gathering of users. Venue managers provided space close to their tables. In urban areas, however, especially in Dhaka, venues are usually busy and overcrowded. Venue managers used a browsing booth for the interview.

Arranging for private space was easier in the non-user survey. Interviews took place within or around the home. Considering the cultural context in Bangladesh, in many cases involving women, particularly in rural areas, interviews were conducted in the presence of someone else in the family.

Dhaka city is an extremely busy city where it is very tough to enter into one's house without prior permission, particularly for a single individual. In anticipation of that, teams of four enumerators were deployed, and use of their local network was made.

Brazil

Venue and user surveys

The venue and user surveys in Brazil were implemented in the states of São Paulo, Rio de Janeiro, Maranhão and Rio Grande do Sul, from September 15-December 12, 2010. The country team in Chile managing and conducting the surveys was PensamentoDigital. The four states collectively account for almost 75 million, about 39% of the country's population. Significant cultural, economic and infrastructural differences among them offer good evidence of Brazil's diversity. Nonetheless, there is no claim that they capture all differences among Brazil's regions. Therefore, the surveys are representative of these states only.

São Paulo and Rio de Janeiro are both located in the southeast part of the country. They represent the most developed area of Brazil and include its two biggest cities. Maranhão represents Brazil's northeast (the country´s driest area) and north (rain forest), with the west half covered by the Amazon jungle. It is one of the poorest states in Brazil, with the majority of the population living near the sea. On the other hand, Rio Grande do Sul is located in the south, the Brazilian area with the strongest European influence. It borders Argentina and Uruguay, and its landscape is mostly pastures (good for extensive cow-raising). Table 6 describes the vital statistics for the four states:

Table 6: Final non-user sample

	Population	**Area**	**Density**	
State	(millions)	(,000 km²)	(inhabitants/km²)	% of GNP
São Paulo	41	248	160.5	31
Rio de Janeiro	15.4	43.7	352	12.6
Maranhão	6	332	18.4	0.9
Rio Grande do Sul	10.5	282	37.5	8.1

The venue sample was two-way stratified, with the primary stratum being the states and the secondary sub-stratum cities/towns within states. Sample allocation was determined by population size, while ensuring adequate sample in smaller places. Population estimates for 2009 (based on the 2000 Census) were obtained from IBGE.

Cities were ranked into four size bands by population, and one city per state from each band was randomly selected - with the exception of the cities of São Paulo and Rio de Janeiro, which were must-take. The size bands used were: very large (> 1 million), large (500,000 – 1 million), medium (100,000-500,000) and small (10,000-100,000). Rural areas[17] were also selected to correspond to the cities/towns selected for the sample. The total sample in Brazil and its allocation are shown in Table 7. The distribution of the surveyed venues by type was: 192 lanhouses, 35 telecenters, 6 libraries, and 5 other.

[17] Brazilian legislation about urban and rural is very old, dating back to 1938, when the country was mostly rural. This legislation considers an area is considered urban if it has at least two of the following improvements made and supported by the government: 1) side walk with channels or pipes for water from the rain; 2) water supply, 3) sewage system; 4) public lighting system, with or without poles for household distribution; and 5) elementary school or health service within 3 km of the area. For the purpose of the study, the local research team defined rural venues as venues that are part of telecenter networks created for specific rural areas, venues located in army units on the Country boards, and venues located in small cities or towns in the north region.

Table 7: Sample of public access ICT venues in Brazil

State	City/Town	# of Venues	Total
São Paulo	São Paulo	50	93
	Itapecerica da Serra	25	
	Itapira	12	
	Cachoeira Paulista	6	
	Rural	4	
Rio de Janeiro	Rio de Janeiro	30	63
	Nilópolis	15	
	Itaguaí	9	
	Mangaratiba	5	
	Rural	4	
Maranão	São Luiz	18	40
	Imperatriz	9	
	Grajaú	5	
	São João dos Patos	4	
	Rural	4	
Rio Grande do Sul	Porto Alegre	25	54
	Santa Cruz do Sul	12	
	Sapiranga	5	
	Giruá	4	
	Rural	4	
BRAZIL		**Total**	**250**[18]

[18] During transportation of the comleted survey instruments, several surveys were lost in the mail. Although 250 venues were surveyed, the total number of venues there is data for is 242.

The inventory was used as the starting point to build the specific sample of venues. A list of venues for each city/town was initially extracted, followed by the compilation of sub-lists grouping venues by micro-regions (neighborhoods) within cities/towns. Subsequently, these were complemented by extensive mapping work by local enumerators, which was very useful in cleaning up and finalizing the lists in a way that reflected local realities. Specifically, enumerators visited all venues selected from the inventory for the sample (although many were not there), searched online for venues, walked the streets of the communities, as well as asked users and non-users for information trying to build a complete map inside the micro-region. In the process they took notes of any change and registered new venues. Mapping was certainly difficult work but a most worthwhile endeavor. It was also during the mapping process that enumerators got information about venue schedules, which facilitated the survey implementation plan. Then, venues were drawn randomly, building a representative sample. Final adjustments (e.g. substitutions) were made during field work.

Non-user survey

The sample for the non-user survey was based on areas around a sub-sample of the surveyed venues, largely randomly drawn. Table 8 shows the surveyed areas and the allocation of the sample[19].

[19] The following neighborhoods were included in each city: In São Paulo, the West and the East; in Itapira the North and the East; in Rio de Janeiro, Tijuca, Copacabana, Méier and Ipanema, with Vargem Grande as the rural area; in Nilópolis, downtown, Olinda and Manuel Reis (the only venue-light area; in São) Luís, downtown, Fátima, Monte Castelo and Canto Da Fabril.among central areas, while in suburbs andlow income areas, Vila Embratel, Vila Janaina, Outeiro Da Cruz, Coroadinho, Fé Em Deus, Apeadouro, Vila Palmeira and Cidade; in Imperatriz, ddowntown, União Jussara, Nova Imperatriz, Mercadinho and Bacuri; in Poto Alegre, downtown, Menino Deus, Bom Fim, Cidade Baixa and Belém Velho as the rural area; in Giruá, downtown.

Table 8: Sample of areas for non-user survey in Brazil

State	City	Type	Individuals	Total
São Paulo	São Paulo	Venue-dense	50	60
		Rural	10	
	Itapira	Venue-dense	32	40
		Rural	8	
Rio de Janeiro	Rio de Janeiro	Venue-dense	50	60
		Rural	10	
	Nilópolis	Venue-dense	16	40
		Venue-light	16	
		Rural	8	
Maranão	São Luiz	Venue-dense	50	60
		Rural	10	
	Imperatriz	Venue-dense	36	40
		Rural	4	
Rio Grande do Sul	Porto Alegre	Venue-dense	50	60
		Rural	10	
	Giruá	Venue-dense	32	40
		Rural	8	
BRAZIL			**Total**	**400**

Overall, sample design was not considered a challenge. However, the research team found it impossible to define the required number of venue-dense and venue-light areas since the venue and user surveys were administered mostly in venue-dense areas. The only venue-light area that could be identified was in Nilópolis, Rio de Janeiro. For the selection of households in each region field researchers first received the definition and description of the area. After arriving there they defined a convenient initial point, marked it with a "mental X" and took it as the corner from where to start. They then walked through the region according to an established strategy: always walk clockwise on a block without crossing the street before finishing the block; as each block is completed, move on to the next. Households were visited in sequence, without jumps, and every time

that the researcher identified a person with the desired profile, he/she proceeded with the interview.

Locating families with people that do not use public access venues was not a challenge either, because many people, especially in big cities, already have internet connection in their households and they do not frequent public access venues. This context varied according to the location. However, even in families were most members are frequently using public access venues, we could almost always find a non-user.

Operational procedures

In the beginning of the exercise, TASCHA held a capacity-building workshop with the leadership and key members of the Brazilian research team. Moreover, all researchers that worked in the team had previous experience with survey content and implementation in the social area, albeit not necessarily in ICTs-for-development or public access to ICTs. They were all able to participate and contribute in debates and planning regarding survey methodology and collection matters.

All enumerator teams were given training specific to the surveys. A formal introduction to the Global Impact Study was followed by specific modules on the venue and users surveys, including the project's main goals and activities as well as the content and details concerning skip patterns. Survey documents and forms were created in Portuguese addressing: the mapping process, user selection, action plan, information sheet, consent form, field work and expense reports. These were sent to enumerators by email, while discussions were also held through videoconference. The coordinators went through each document in detail, individually with each enumerator. Moreover, they kept daily contact with the enumerators that reported problems from field work.

User selection was based on the user selection strategy provided by TASCHA, suggesting that a "simple skip" method be implemented for the greatest parity of gender and age. The strategy was modified to work within the context of Brazilian venues to accurately represent the users within that location. If more men than women were present, then the sample would reflect that. It was decided that an accurate portrait of venue users was of greater importance than gender parity.

Interviewers implemented the survey in more than one venue per day, so they could visit the same venue on different shifts and different days. As few venues are open at night in Brazil only a small number of questionnaires were completed at night.

The amount of time used in recruitment generally varied depending on the city. In big cities it was generally harder than in small ones. Respondents from lower economic levels were also more receptive to the survey.

For non-users in larger cities (state capitals), researchers needed to go to an average of five households to get one respondent. This number fell to three in smaller cities. In households with older people the time spent was much longer

than average because it took more time to understand technology-related subjects and also because older people would tend to hold longer conversations with enumerators.

Initially a box of chocolates was offered to respondents in the user survey (approximately $US 3). Based on a suggestion by the enumerators this was changed to one hour of access in lanhouses. This helped much not only to get the cooperation of users but of operators too, as they were happy that enumerators were buying hours of access. No compensation was offered to respondents in the non-user survey.

Challenges

Finalizing sampling was hampered by venue closures. In all cities, a number of venues in the lists had stopped operating. An extreme case was encountered in Grajau City, Maranhão, where enumerators realized that 70% of the listed lanhouses had closed (by the owners) because of the bad quality of internet connections in city. The local ISP delivers just 2MB for the whole city, which came out as a 70KBPS for each place (including venues). Considering that each venue had many computers, the real bandwidth available was from 10 to 30 KBPS on each computer. Besides bandwidth problems, it was reported that frequently the whole city would stay without internet access for a few days. The city also has problems with power supply; enumerators reported cases of blackouts, and the fact that intermittent power can damage the computers.

In Imperatriz City, Maranhão, telecenters had been closed (by authorities) because owners or operators were caught using the venue for political publicity during elections.

Getting public access venue owners/operators to participate was not easy, as was to get their permission to interview users. In all four states enumerators were not easily trusted by operators, who were concerned with authorities checking for venue licenses and tax payments, software licenses, under-age users (in lanhouses) or simply concerned that enumerators would bother their customers. In Itapecirica da Serra, São Paulo, many lanhouse operators were afraid of the survey and did not allow enumerators to go inside the venues. Similarly, in the richest area of Rio de Janeiro many lanhouse operators did not allow entry because it would bother their customers. In Itapica and Cachoeira Paulista, many lanhouses were closed because of a lack of users - public schools are offering public access there.

In the case of telecenters that belong to government networks, operators would not respond until they received permission from local governments that support the telecenter network. In Porto Alegre, Rio Grande do Sul, enumerators were allowed to conduct interviews on the local network of telecenters only after a period of trying, including an eventual meeting and a long talk to convince the "program coordinator" inside the municipality. Nevertheless, many operators would still not respond saying that they had not received formal information from the municipality allowing them to do so.

Enumerators could not conduct surveys on any telecenter that belongs to the Acessa SP network, supported by the state government of São Paulo. This decision was upheld even after a talk directly with the program coordinator. According to their website, Acessa SP has 602 centers in 543 cities/towns in the São Paulo state.[20]

Finding private spaces in venues to conduct interviews was very challenging, mainly in lanhouses. In the non-user survey, many interviews were conducted outside, in front lawns, gardens etc.

In Brazil there are many institutes that conduct survey on public opinion, but those that are most recognized by the population as serious institutions invest in visual identification for their enumerators. The research teams introduced uniforms that gave a professional and serious look to the field researchers, as well as standard material: vest, pen, hat, folder, badge and clipboard.

Finally, the intended beginning of the non-user survey coincided with the carnival season. It was decided to postpone it until after the carnival holidays.

Chile

Chile is divided in 15 regions, with 54 provinces and 346 municipalities. The "long and narrow" geography of the country adds complexity to survey work due to the long distances between municipalities. A common demarcation of areas is based on groups of regions with similar features, including landscapes, climates and even cultural aspects. Five such areas are recognized:

1. North, comprising 4 regions and 29 municipalities (population 1,069,359)
2. North-Central, comprising 2 regions and 49 municipalities (population 2,145,244)
3. Central, comprising 1 region and 52 municipalities (population 6,395,000)
4. South-Central, comprising 3 regions and 117 municipalities (population3,457,204)
5. South, comprising 5 regions and 94 municipalities (population 2,350,298)

Venue and user surveys

The venue and user surveys were administered in all five areas, from October 2010 to February 2011. The country team in Chile managing and conducting the surveys was the University de La Frontera Centro de Investigaciones de La Inclusión

[20] This partially accounts for the relatively low number of telecenters in the Brazil sample.

Digital y La Sociedad del Conocimiento.

An initial sample allocation of the venue sample was made by area, based on population. Then, the national distribution of public access venues by type (from the 2,038 inventory entries) was used to further allocate individual area samples.

Having distributed the sample by area and venue type within areas, municipalities were selected based on their size. The following size bands were used:

- Very large, >250,000 inhabitants
- Large, 150,000-250,000 inhabitants
- Medium, 30,000-150,000 inhabitants
- Small, 10,000-30,000
- Very small, 5,000-10,000 inhabitants
- Rural, <5000 inhabitants

Then municipalities were drawn randomly within each size band, with the exception of metro Santiago, including rural areas. 16 regions and 82 municipalities were represented, very distributed geographically. The final allocation of the sample is shown in Table 9. The national distribution of public access venues was: 109 cybercafés, 22 telecenters, 71 public libraries, and 41 other.

Table 9: Sample of public access ICT venues in Chile

Area	Region	# of Venues	Total
North	Antofagasta	20	30
	Arica y Parinacota	2	
	Tarapaca	4	
	Atacarna	4	
North Central	Coquibo	17	45
	Valparaiso	28	
Central	Metropolitana (metro Santiago)	75	75
South Central	Libertador Gral. Bernando O'Higgins	12	55
	Maule	14	
	Bio Bio	29	
South	Araucania	14	45
	de los Rios	8	
	de los Lagos	14	
	Aisén del Gral. Carlos Ibénez del Campo	3	
	Magallanes y de la Antartica Chilena	6	
CHILE		**Total**	**250**[21]

The inventory was used to identify individual public access venues. It provided shares for venue types at the national, regional and community levels. While the information was good for most venue types, many addresses were missing for cybercafés. This necessitated multiple Google searches, complemented by telephone calls. The mapping option was not applied as it would delay the fieldwork and be very expensive in Chile.

Users were randomly selected at locations, but some difficulty arose due to the limited number of patrons at the selected venue. Although only one or two

[21] Although 250 venues were selected for the sample, only 243 venues were surveyed. The team had a difficult time finding open telecenters that were willing to participate in the survey and were not able to find additional telelcenters to include within the sampling time period.

patrons were available at a time at certain venues, an effort was made to survey an equal number of men and women. Given the limitations, a structured survey strategy required modification.

Non-user survey

This took place from February 14 - April 22, 2011. The sample consisted of a sub-sample of the municipalities surveyed in the venue/user survey. In total, 8 municipalities were selected. Within them, armed with the experience of the previous surveys, the territorial advisors identified three venue-dense and three venue-light neighborhoods and from each set one location was randomly selected. The former were usually central city areas, the latter peripheral areas. The detailed sample is shown in Table 10.

For the actual selection of households, a perimeter boundary of at least 12 blocks was first selected in all neighborhoods and/or villages selected. Then, the territorial advisors randomly chose every third household in each street, for a total of two households with non-users per street.

Operational procedures

All survey undertakings in Chile involved the collaboration with several local partner organizations. Moreover, a total of 64 enumerators participated in the implementation of the surveys. To deal with both coordination and subject-matter issues, extensive training was offered and communication channels were continuously open among team members.

Many telephone calls were placed to public access venue owners/operators ahead of time. Their participation did not pose any big problem, although several were not found. However, the initial refusal of the National Programme Coordination Biblioredes to implement the surveys in public libraries was a major issue. This was a consequence of the change in government - besides the earthquake which caused some destruction of public access venues in affected areas.

Small gifts were given to each respondent in the venue/user – in the form of a pocket calculator (about $US 3).

Table 10: Sample of areas for non-user survey in Chile

Area	Region	Municipality	Type	Individuals	Total
North	Tarapacá	Iquique	Venue-dense	18	46
			Venue-light	18	
		Pica	Rural	10	
North Central	Coquimbo	La Serena	Venue-dense	18	46

			Venue-light	18	
		Paiguano	Rural	10	
	Valparaíso	Viña del Mar	Venue-dense	18	46
			Venue-light	18	
		Papudo	Rural	10	
Central	Metropolitan	Maipú	Venue-dense	16	78
			Venue-light	16	
		Santiago	Venue-dense	18	
			Venue-light	18	
		Alhué	Rural	10	
South Central	Maule	Talca	Venue-dense	18	46
			Venue-light	18	
		Pencahue	Rural	10	
	Bio Bio	Concepción	Venue-dense	18	46
			Venue-light	18	
		Quilaco	Rural	10	
South	Araucanía	Temuco	Venue-dense	18	46
			Venue-light	18	
		Curarrehue	Rural	10	
	Los Lagos	Puerto Montt	Venue-dense	18	46
			Venue-light	18	
		Sn Juan de la Costa	Rural	10	
CHILE				**Total**	**400**

Challenges

About 18% of venues originally shortlisted were not available when the survey was implemented. In most cases, they were permanently closed and, to a lesser extent, closed temporarily. Other times, venues did not have a fixed schedule of

operation, especially in rural areas, and they were closed without anyone to provide information.

In the case of operators at infocenters and telecenters appointments were arranged by phone or email prior to the visit. However, in the case of cybercafés some operators refused to answer because they had no permission or consent from the owner. In other cases, the demands of the place prevented implementation.

An additional hurdle was that surveying was not allowed in locations where telecenters implemented by the public policy Programme "I Love My Neighborhood" were present.

Ghana

Venue and user surveys

The surveys were conducted in three regions of the country, Ashanti, Greater Accra and Western Region, between June and September of 2011. The country team in Ghana managing and conducting the surveys was the Council for Scientific and Industrial Research- Science and Technology Policy Research Institute (CSIR-STEPRI). These are the regions were most governance, administrative and commercial activities are concentrated and likely to host large numbers of venues.

The survey in Ghana was based on the limited inventory data and population size to determine the sampling distribution for selected cities in the three regions. Researchers used the inventory data as a starting point to identify public access venues, followed by snowball sampling techniques to identify enough venues to meet the requirements as established by the survey guidelines. Operators of the known venues were asked if they knew other venues in their area. In specific instances, users were also asked if they knew other venues in their area. As new venues were discovered they were added to the existing database. In total, 250 venues were selected: 220 cybercafés, 14 telecenters and 4 libraries, while 12 venues were classified as other. Of the venues chosen for the survey 208 were in an urban environment and 42 were in rural communities[22].

The venues in a given locality were assigned specific numbers and a random technique was used to select the total number of venues earmarked for specific cities/towns/areas (Table 11).

[22] The Ghana Statistical Service defines a rural area as a town/community with a population less than 5,000.

Table 11: Sample of public access ICT venues in Ghana

Region	City/Town/Area	# of Venues	Total
Greater Accra	Achimota	3	100
	Adentan	4	
	Dodowa	3	
	Dzorwulu	2	
	Madina	8	
	Kaneshie/North Industrial Area	7	
	Asylum Down	2	
	La/Labadi	8	
	Kokomemle	3	
	Abokobi	2	
	Amarhia	1	
	Frafraha	1	
	Afienya	2	
	Bethlehem	2	
	Dawhenya	2	
	Sakumono	3	
	Ashaiman	7	
	Lashibi	3	
	Nima	7	
	Oyibi	2	
	Tema	16	
	Osu	4	
	Accra/Ministries	6	
	Tesano	2	
Western	Adiembra	2	50

	Apremdo	2	
	Apowa	4	
	Beahun	1	
	East Tanokrom	6	
	Ketan	1	
	Kweikuma	1	
	Takoradi	8	
	Anaji	2	
	BU	1	
	West Tanokrom	3	
	Kwesimintsim	5	
	Efia	2	
	Fijai	1	
	Ntankoful	1	
	Sekondi Takoradi	10	
Ashanti	Bekwai	2	100
	Old Tafo	12	
	New Tafo	9	
	Suame	2	
	Bantama	3	
	Dichemso	3	
	Asawasi	2	
	Aboabo	2	
	Ejisu	2	
	Kententrono	2	
	Dompoase	1	
	Atasamanso	1	

Akrem	1	
Kodie	1	
Nkwantakese	1	
Sepetinpon	1	
Bomso	1	
Oduom	2	
Asokore Mampong	1	
Anwomaso	1	
Fumesua	1	
Oforikrom	5	
Krofrom	2	
Akwatia Line	2	
Konongo	4	
Amakom	11	
Asante Mampong	3	
Adako Jachie	1	
Akotosu	1	
Adanwomase	1	
Kyirapatre	2	
Obuasi	17	
GHANA	**Total**	**250**

Non-user survey

The survey took place between June and August 2011 in a total of 10 cities from the selected regions. Using the sampling guidelines and the number of venues in the upgraded inventory data 10 cities/towns/rural areas were selected. Out of this number, four cities were selected from the Greater Accra Region, four from the Ashanti Region and two from the Western Region. This is consistent with the sampling strategy for the venue survey where equal allocation was made for Greater Accra and Ashanti Regions. Areas with 10 or more public access venues were classified as dense areas and those with fewer than 10 as light. Rural areas

were also chosen in close proximity to the densely and lightly populated areas. In those areas determined to be densely and lightly populated, 18 non-users were interviewed; in rural areas, 4 non-users were selected (Table 12).

In the selected area/cities for the non-user survey an important landmark or major road intersection in the selected towns/suburbs was used as a starting point in dividing the town/suburbs into four strata and a simple random technique was used to select the stratum where non-user sample frame was drawn. Once a particular section of the town/city/suburb was identified, a systematic technique with random start was used to select houses from which non-user households were later identified. In the implementation of the non-user survey, every third house was selected.

Most Ghanaians live in "compound houses" which consist of several combined households and for the purposes of the survey non-user households were identified and randomly selected. The same method was used for single household dwellings such as bungalows and apartments. Once a household had been properly identified, non-users were chosen based on age and gender attributes in order to achieve parity in the subject pool.

Table 12: Sample of areas for non-user survey in Ghana

Region	Area	Type	Individuals	Total
Greater Accra	Madina	Venue-dense	18	40
	Kaneshie	Venue-light	18	
	Kokomlemle	Venue-light	4	
	Tema Newtown	Venue-dense	18	40
	Dodowa	Venue-light	18	
	Abokobi	Rural	4	
	Achimota	Venue-dense	18	40
	Dzowulo	Venue-light	18	
	Tesano	Venue-light	4	
	Tema Community 1	Venue-dense	18	40
	Ashaiman	Venue-light	18	
	Community 6	Venue-light	4	
Western	Sekondi	Venue-dense	18	40
	Butumajebu	Venue-light	18	

	Ntankoful	Rural	4	
	Takoradi	Venue-dense	18	40
	East Tanokrom	Venue-light	18	
	Apremdo	Rural	4	
Ashanti	Amakom	Venue-dense	18	40
	Kentenkrono	Venue-light	18	
	Oduom	Venue light	4	
	Oforikrom	Venue-dense	18	40
	Konongo	Venue-light	18	
	Fumesua	Rural	4	
	Old Tafo	Venue-dense	18	40
	Dickemso	Venue-light	18	
	Krofrom	Venue light	4	
	Obuasi	Venue-dense	18	40
	Kyerapatre	Venue-light	18	
	Aboabo No.1	Venue light	4	
GHANA			**Total**	**400**

Operational procedures

Three team leaders and 42 enumerators conducted research in the three chosen regions. Enumerators from Ashanti and Western regions were chosen on the recommendation of regional directors of the Ghana Statistical Service and had worked with the research team previously. In Greater Accra, the research team was augmented by national service personnel. Questionnaire training and project background was provided by TASCHA to team leaders who led subsequent training of enumerators in their regions.

Respondents from urban venues were chosen using a simple systematic method with a random start. In urban environments with three or more existing patrons, every third user was solicited to participate in the survey. If there were fewer than three, the third patron to enter the venue would be asked to participate. Rural area venues were less populated and therefore the same method was modified and every second user was asked to participate.

In general, there was very little trouble recruiting participants. The majority of participants were interested in how the outcome of the results would affect their particular region and Ghana as a whole. No more than three potential respondents were contacted before a willing participant was found. All participants were compensated for their time with hour-long internet vouchers at the venue in which they were interviewed. Operators of the 250 venues selected were also asked to participate in a survey and all 250 agreed and rewarded with cell phone vouchers.

Challenges

One of the challenges faced by the team in Ghana was the lack of available data on valid public access venues. The team found that they needed to use snowball sampling techniques and consult with area residents in order to find an adequate number of venues to meet the survey guidelines. In Ashanti and the Western Region there were instances in which the allocated venues were not found and enumerators were forced to find suitable venues in nearby areas. Due to an inconsistent naming scheme of streets, an in-depth knowledge was helpful to easily locate venues. In order to clear up confusion about location, landmarks and geographical markers were used to describe locations. Enumerators updated the existing database as new venues were discovered and added to the survey.

In some instances operators declined to answer survey questions until they had clearance from the owner of the outlet, or required that the owner answer any sensitive questions surrounding finances. Due to the fact that most owners were off-site, the operator surveys were often delayed. Some owners believed that the interviews were being conducted for tax purposes and required verification that there would be no financial ramifications by participating in the survey; a letter of introduction provided by CSIR-STEPRI served to assuage any anxiety surrounding the issue of taxes.

The initial length of the survey was a concern to the first round of participants as it took an average of an hour and fifteen minutes to complete. Some participants threatened to or did abandon interviews without completion. As enumerators mastered and adapted the survey the average time was reduced to 45 minutes..

Among the non-user participants the greatest fear was for their personal safety as the rate of armed robbery was high in the areas of study. The letter of introduction from CSIR-STEPRI was presented by enumerators to encourage participation.

Philippines

The geography of the Philippines is quite complicated, with thousands of islands. Balancing the country's diversity and taking into consideration issues of safety, the sampling included five cluster areas, namely: Metro Manila or the National Capital Region (NCR), Luzon I (Cordillera Administrative Region, Regions I, II, and

III), Luzon II (Regions IV-A, IV-B, and V), Visayas (Regions VI, VII, and VIII), and Mindanao (Regions IX, X, XI, XII, and XIII). The sampling areas did not include towns and cities in areas considered conflict-riddled and election hot spots.

Venue and user surveys

These surveys took place from August 7- November 6, 2010. The country team in the Philippines managing and conducting the surveys was Ideacorp. The venue sample was initially allocated based on the population of the five clusters covered by the survey – with some adjustments for areas not covered in Mindanao. Subsequently, cities and towns were selected on the basis of their population density (size) and income classification (based on the data of the Philippines National Statistics Coordinating Board), to distinguish urban and rural areas[23]. Except for the must-take cities of Manila and Cebu, all other cities were randomly chosen. The final surveyed sample consisted of 261 public access venues, and its complete distribution is shown in Table 13. The nationwide distribution of the sample by venue type was: 229 cybercafés, 13 telecenters, 18 libraries, and 1 other - most of which are located in urban centers and are privately-owned for-profit businesses.

Table 13: Sample of public access ICT venues in the Philippines

Region	City	# of Venues	Total
National Capital	Quezon	11	73
	Manila	12	
	Caloocan	10	
	Pasig	7	
	Taguig	7	
	Valenzuela	7	
	Parañaque	7	
	Marikina	4	
	Pasay	4	
	Malabon	4	

[23] The identification of rural areas is not straightforward in the Philippines and can complicate sampling design, as the official definition was found problematic. To address this issue, the research team resorted to the of the income classification of cities and towns. Municipalities belonging to the 2nd-5th class were regarded as rural areas.

Luzon I	Pampanga	12	43
	Benguet	11	
	Bulacan	6	
	Pangasinan	8	
	Ilocos Norte	6	
Luzon II	Batangas	11	41
	Laguna	11	
	Camarines Sur	6	
	Albay	6	
	Rizal	7	
Visayas	Cebu	15	52
	Iloilo	13	
	Bohol	8	
	Negros Occidental	8	
	Leyte	8	
Mindanao	Davao del Sur	13	52
	Misamis Oriental	13	
	Bukidnon	10	
	Misamis Occidental	8	
	Compostela Valley	8	
PHILIPPINES		**Total**	**261**

The venue inventory was used in selecting the specific venues located in the sampling areas. Using a system of random numbers and the inventory list by city, a specific cybercafé in a city was first selected. Then the other venues were identified and clustered for reasons of efficiency and costs during survey implementation. If the randomly selected areas had telecenters, these were purposively included in the sample. During the Enumerators' Workshops, the proposed user selection strategies were presented and it was agreed that enumerators may choose to ask the first male/female who finishes using the

internet/computer to be interviewed. They may also choose to randomly select a user from the ones in venue (nth male/female).

The strategy for user selection, however, depended on the number of users in the venue and the number of computers in the venue as well as the willingness of respondents to participate in the survey interview. Most of the enumerators preferred the user selection strategy - the first male/female that finished using the internet/computers.

Non-user survey

This survey took place among 400 individuals from February to March, 2011. First, a sub-sample of municipalities from the venue/user sample was randomly arrived at. Then, within each city venue-dense areas (with three or more venues) and venue-light areas were established. Subsequently, one area of each was randomly drawn. The complete sample is shown in Table 14.

The allocation of the household sample was presented to the local enumerator teams. This allowed the surfacing of issues that may be faced in the field and addressed them at the onset of the exercise. During these briefing sessions, the locations of venues were clarified and area boundaries were identified with the use of local maps. The local teams approximated a 10 x 10 block radius in considering the boundaries of their areas.

Interviews were conducted at every 10th household within the initial 10-block radius, going beyond if necessary to complete the required number of respondents. In the event that every 10th house landed on mid-rise or high-rise housing, the team ascertained the number of units in the building and treated each unit as a house.

The selection of individual respondents took place as per the guidelines, that is, securing an equal number of males and females and different age groups.

Table 14: Sample of areas for non-user survey in the Philippines

Region	City	Areas	Type	Individuals	Total
National Capital	Quezon	Loyola Heights	Venue-dense	23	55
		Valencia	Venue-light	22	
		Cardona, Rizal	Rural	10	
	Manila	Sta. Mesa	Venue-dense	23	55
		Ermita	Venue-light	22	
		Liliw, Laguna	Rural	10	
Luzon	Angeles	Balibago	Venue-dense	23	55
		Tabun	Venue-light	22	
		Masantol	Rural	10	
	Lipa	Mataas na Lupa	Venue-dense	23	55
		Barangay 1	Venue-light	22	
		Mataas na Kahoy	Rural	10	
Visayas	Cebu	Guadalupe	Venue-dense	23	45
		Pari-an	Venue-light	22	
	Iloilo	Jaro	Venue-dense	23	45
		Iloilo City Central	Venue-light	22	
Mindanao	Davao	Toril	Venue-dense	23	45
		Cabantian	Venue-light	22	
	Cagayan de Oro	Nazareth	Venue-dense	23	45
		Tomas Saco	Venue-light	22	
PHILIPPINES				**Total**	**400**

Operational procedures

Workshops were organized for the training of enumerators. The subject-matter of the project was clearly explained and the survey strategies were discussed in detail, including sampling plans and selection of venues, users and non-users. As

well, practice runs took place to increase enumerator fluency with the survey instruments.

Initially, interviews lasted a bit longer; soon though enumerators were able to conduct them more efficiently. User sampling took place at different times of the day, mornings, afternoons and evenings. However, there were cybercafés that only opened at 11:00 am. This affected the morning sample since only a few users existed. The majority of the users came in the afternoon, thus there was a greater number of respondents interviewed then. In the evening, there were only very few female users interviewed. Likewise, in Mindanao it was observed that majority of the cybercafés were frequented by male users which limited the selection of girls or women during the survey implementation.

In the case of telecenters and public libraries, which are government run, most surveys were undertaken during weekdays unless these venues had special schedules different from the official working hours of government offices. Since most public access venues in the sample were cybercafés, the importance of conducting surveys during the weekends was emphasized.

A few respondents did not finish the interview because they found the survey questions too long and repetitive. Some enumerators had to wait for an hour or more to get a respondent to agree and participate. However, as time went by, it was observed that the number of refusals had decreased. One of the strategies used was to work in tandem with another enumerator or in a small group assigned in the area. While one enumerator was recruiting, another was already conducting the interviews.

For the non-user survey, prior to the actual interviews, the enumerators visited the barangay (village) officials in the sampling areas. They were quite helpful in facilitating the introduction of the survey, locating households and recruiting interviewees.

The small tokens (two-hour worth of internet time) or financial compensation (PhP 30 for the respondents in the user survey, PhP 50 in the non-user) were very helpful in recruiting users - and to some extent venues operators. The barangay officials that accompanied the enumerators during their survey interviews were also given meals.

Challenges

Consolidated reports from the enumerators showed that about 22% of cybercafés had already closed. The information about the existence of such venues in the actual location was corroborated by key informants, such as neighbors or knowledgeable persons from the vicinity. There were also many temporary closures for a variety of reasons, such as computers were used by employees of the local government, there was no internet signal, computers were out for repair or replacement, the new local government administration fired previous staff and was hiring new, and more.

About 6% of cybercafé operators refused to participate in the survey. There were also non-owner operators who would prefer to get their bosses' approval before they cooperate with the enumerators. On the other hand, operators in libraries and telecenters tended to be more open and responsive to the survey.

Of the 24 identified library members of the Philippine eLibrary consortium (eLIb), 14 were included in the sample. Three additional libraries were identified for inclusion, Pangasinan Provincial Library (Pangasinan), Dagupan City Library (Dagupan), and Negros Oriental Provincial Library (Negros Oriental). These libraries were located near the identified areas in our sample but were not included in the sample.

Other issues arose as well, and it proved useful to have enumerators knowledgeable about the situations on the ground and with the language facility for local communication. For example, at Valencia City, Mindanao, the enumerators were supposed to conduct interviews at the barangays of Batangan and Barobo. The latter at that time was encountering political conflict, the situation was considered critical and the area a hot spot. The enumerators opted to proceed to Batangan only. Likewise, in Cagayan de Oro City, the enumerators did not proceed to the interior of Lapasan, which was not considered safe at that time.

In Luzon I, the rural counterpart for Baguio City is Atok, Benguet. However, due to the rains over the area the roads going to Atok had become dangerous. An alternative rural area was sought, and the municipality of Tuba, which was nearer Baguio City and with less perilous roads, was chosen. However, upon visiting Tuba, our enumerator learned that the community eCenter (CeC) in Tuba was already closed and that there are no cybercafés open in the area. One visitor in the municipal hall was a government employee from Atok who said that the CeC in Atok has been closed for several years already. The municipalities in Dingras/Batac in Ilocos Norte were chosen to replace the CeC sample for Atok (rural area).

During the user interviews, the enumerators and the interviewees experienced lack of privacy due to the size and layout of most venues. In the non-user survey, enumerators were rarely invited inside homes, so the interviews were conducted outside - in a porch, a yard or just at the fence/gate of the house.


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