Using an Information Ecology Approach to Identify Research Areas

Findings from Bangladesh

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This research was conducted as part of the *Global Impact Study of Public Access to Information & Communication Technologies*, a five-year (2007-2012) project to generate evidence about the scale, character, and impacts of public access to information and communication technologies. Looking at libraries, telecenters, and cybercafes, the study investigates impact in a number of areas, including communication and leisure, culture and language, education, employment and income, governance, and health. The Global Impact Study is implemented by the Technology & Social Change Group at the University of Washington Information School with support from Canada's International Development Research Centre (IDRC) and a grant to IDRC from the Bill & Melinda Gates Foundation. Learn more at **globalimpactstudy.org**.

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Using an Information Ecology Approach to Identify Research Areas: Findings from Bangladesh

INTRODUCTION

Information asymmetry is one of the main factors for imperfect decision making by the government, citizens and for market inefficiency. With the advent of information and communication technologies, it becomes easier to be best informed about what government is doing, what are the entitlements not reaching the target people, and most importantly, the scope of being heard has been improved dramatically. Access to information and knowledge through ICTs is relatively a new issue for the population of developing countries. Every rural community has its own information and knowledge ecosystem, where ICT-based information and knowledge is a new phenomenon, thus, it is interesting to learn how the existing system gives space to the new element. The understanding of ecosystem is arch-important for understanding impact of the new ICT-based information and knowledge system on the community members. The rural areas, in countries like Bangladesh, still lack proper infrastructure, poverty incidence in rural areas is higher than in urban areas. The behavioral pattern of rural community people needs to be studied before any ICT-based intervention, including study on impact assessment.

This paper is an attempt to capture the experience from the fields in Bangladeshi villages of information ecology mapping. The mapping exercise essentially focused on knowing how rural people interact within and outside their community and collect, use, and assimilate information and knowledge for various livelihood and social purpose. This "Information Ecology Mapping" exercise took place under the *The Global Impact Study of Public Access to information and Communication Technologies*. Information ecology mapping provides a micro view on how information plays its role in a community. The primary purpose of the mapping exercise was to gather intelligence for development of a methodology to assess the impact of public access to ICT. The mapping exercise took place in selected communities (rural, urban and semi-urban) surrounding public access venues (library, cybercafé, and telecenter).

The Bangladesh Country Research Team (BCRT) identified 9 locations for information ecology mapping [see Bangladesh map in Figure 1]. The selection of the locations was based on a few criteria:

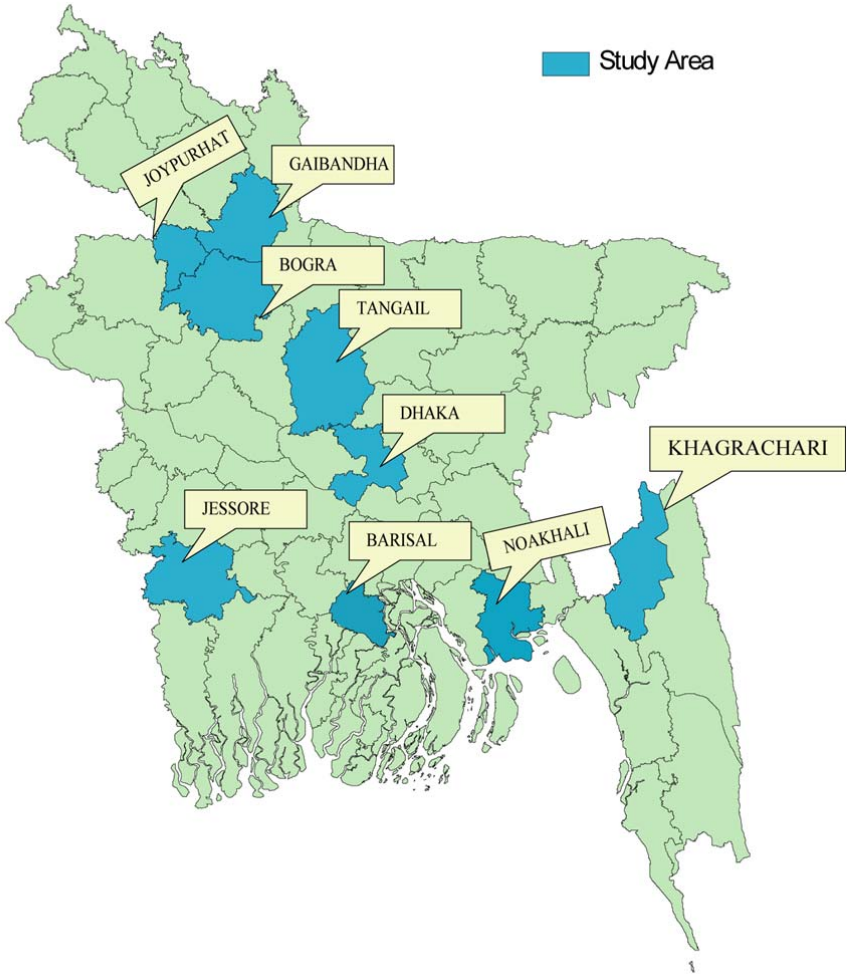
- the locations represent both urban and rural areas
- they represent different agro-ecological zones, which creates scope for diversified livelihood opportunities
- the locations represent both rich and poor areas of the country (in terms of density of poor population)

OBJECTIVES

The broader objective of the information ecology exercise is to understand real scenario regarding information delivery and collection pattern of a community adjacent to a public access venue, and to get insights for methodology development for assessing impact of public access venues.

The specific objectives of the mapping exercise were to:

1. Identify the information and ICT based service requirements of the community people;
2. Identify existing and potential sources and venues for access to information and ICTs;
3. Identify linkage between community people and common access venues through ICTs;
4. Understand the mode and pattern for seeking information and using ICTs in different venues;
5. Identify challenges encountered by operators and users.



APPROACH/METHODOLOGY

For the ecology mapping the BCRT applied the Participatory Rapid Appraisal (PRA) tool. The PRAs were arranged with several groups of people including the participants with different occupation, age and socio-economic conditions. Both male and female participants were invited. The BCRT also communicated with owner, managers and infomediaries of the public access venues and requested them to help the team for the research. They were excited to learn about the project and were happy to become a part of it through taking responsibility of convening the PRA. With their facilitation the team conducted PRAs with 12-15 people for each location. The conveners were very committed in some cases and they prepared an invitation card for the participants with time, venue and brief description of the PRA and its objectives. Along with the PRA, the team applied general observation and discussion method with the service providers of the community based public access venues for information ecology mapping. During the exercise the BCRT traced other information venues, their activities, users and uses through non-participatory observation.

The following steps have been followed in conducting PRA:

Step 1: List of problems/information need

List the problem and need of information on a flip chart identified by the community representatives.

Step 2: List the source of information

- List the source of information and service when the community representatives face problem with their livelihood and other issues,
- List the potential source the community people use in case of need of specific information and service,
- Identify sources, which are mentioned more than once or perceived to be used most frequently by the PRA participants.

Steps 3: Draw the hierarchy map of identified sources

- Transfer the identified sources of information onto another flip chart along a locational hierarchy that was locally relevant: asked them about village, union, Upazilla (sub-district), district, division, etc.
- For tracing the more frequently used sources, more than one lines are drawn from the “information seeker” to the “information provider”. The maximum number of lines between the “seekers” and “providers” indicate the most frequently used information sources for the villagers. There are some sources identified within the community or beyond, which were not used in general, so there is no line drawn between ‘seekers” and “providers” in those cases.

Step 4: Way/mode of communication

After the drawing of the flow chart of information the team facilitated the discussion about “nature of the relationship or linkage as communication happens once or often; a two-way or a one-way linkage and who initiates it”. The team made lines thicker for

permanent or regular linkages and thinner or dashed for rare ones. The team used arrows to indicate whether the linkage is one way, the other way, or two-way.

Step 5: Accuracy check with the participants

When the listing of sources was completed, the group was asked whether the diagram is an accurate representation of the discussion. Then the community representatives were asked to comment on the pattern that emerges. The BCRT took the maps for preservation.

Step 6: Integration of all maps (categories/different groups on same category)

Individual maps for each of the locations were then combined for each of the areas of livelihood. For example, the team developed map for agriculture, health, education, employment etc combining inputs from all locations.

By following the first two steps the BCRT listed the problems of livelihood the community faces and need of information on a flip chart, the source of information and service when they face problem, the potential source if they need specific information and service and indicate the source, which is mentioned based on the participants' opinion. According to the participants' opinion, problems were identified in the following areas (according to the level of importance and frequency of problem occurrences):

1. Agriculture
2. Health
3. Law and human rights
4. Education
5. Employment
6. Self employment/non-farm economic activities
7. Disaster preparedness and management
8. Government service
9. Entertainment
10. News
11. Commerce & business

The community also expressed that they are interested to know more about corruption and government action against it. After that the team asked some guiding questions. The participants prioritized further among the eleven categories for in-depth mapping exercise.

INFORMATION ACCESS PATTERNS OF THE COMMUNITIES

1. Agriculture

Agriculture is the main occupation in all selected locations except Dhaka and Bogra. However, the cropping pattern and mode of production are not same in those areas. More than two-third farmers are illiterate and some have an up to primary level education. Generally, the farmers face problems related to the following issues of agriculture:

1. Sources of quality seeds
2. Insecticides
3. Pesticide
4. Fertilizer availability particularly from govt. sources
5. Availability of electricity and high price of fuel for irrigation
6. Irrigation
7. Availability of agriculture extension officer (block supervisor)
8. Maintenance of soil quality
9. Market price for agricultural commodities
10. Information for storage facilities (particularly for potato)
11. Crop Selection
12. Agriculture production estimation (How much rice will be produced at this area in this year)
13. Cultivation system
14. Power (Electricity) unavailability and high price of fuel for Irrigation
15. Agro Tools (including irrigation machine)
16. Availability of local seeds
17. Preservation system
18. Processing facilities
19. Quality of water for fisheries
20. Appropriate technology
21. Service delivering agencies (Which officer delivers which services)

During the PRA the participants informed that they visit or avail a number of sources (Table 01) for information on agriculture. The Table 01 shows the linkage of the information seekers with sources of information by a number of explanatory variables. The sources are divided into three groups by frequency of use. The criteria for determining a source under a particular group are: at least once in two weeks: high, at least once in a month: medium, at least once in a year: low. The sources

presented in the table are according to relative frequency within a specific group, thus easy to understand which sources are most frequently used.

The PRA revealed that the most frequently visited sources may not be most relevant or most effective source of information. The reasons behind high frequency despite limited effectiveness identified by the PRA representative are ease of access and relationship of trust. The trust relationship here was not determined as “degree of trust” rather “number of people trust”. It is obvious from the table 01 that people prefer to discuss their problem face-to-face and they are relatively less comfortable with use of technology. However, ranking of telecenter in the group of “medium frequency” shows that the technology use for getting information is getting ground in rural areas. Compared to agriculture extension officer or block-supervisor and NGO, it was revealed that people go for information to block supervisor more than to NGO, despite NGO’s targeted intervention. Among the three types of public access venues, the library was rated lowest in terms of providing access to knowledge on agriculture. Basically it is due to more generic problem: lack of currency of the resources available in the library and prevalent illiteracy. A few journalists use websites for preparing reports on agricultural production and problems. They use websites for getting domain knowledge.

In general, people in the community still rely on information sources which are in their vicinity and face-to-face channels are the most preferable channels. The ICT based channels are getting gradually ground and their effectiveness and relevance are also at the middle.

The information ecology map for agriculture (Figure 2) shows that community people prefer mostly information sources within their community, however, they go to next two levels for getting information, when need is urgently felt. The most frequently used sources of information beyond tertiary level is large market of inputs, where experienced farmers also gather, which gives scope for getting some advice. The research institutes are the second most frequently used sources, however, they are not used by farmers, rather they are used by journalists and students. At the secondary level, the most frequently visited sources are agricultural fair and wholesale market. Veterinary doctors and nursery are also visited by them.

Table 01: Sources and frequency of information received by the respondents

Sources (place/person)	Frequency	Channel	Relevance	Effectiveness	Major demerit	Major benefit
Neighbor and relatives	High	Face to face, mobile phone	High	Mixed	Not always up-to-date knowledge is shared	Only source for exchanging traditional and indigenous knowledge
Elderly person of the community	High	Face to Face	High	Mixed	Not always up-to-date knowledge is shared	Only source for exchanging traditional and indigenous knowledge
Agriculture Input traders(Insecticides, pesticide, seed, fertilizer, nursery, hatchery)	High	Face to Face	Low	Low	Misguiding due to lack of knowledge and also due to promotion of particular products by traders	Ease of access
Informal discussion during public gathering	High	Face to Face	High	Mixed	Dominant participant may mislead	Effective for sharing latest developments
Representative of Insecticides Companies	High	Face to Face	High	Medium	Misguiding for commercial greed	Immediate benefit
Block Supervisor	Medium	Face to Face (Meeting)	Low	Mixed	Lack of up-to-date knowledge	Neutral and authentic source

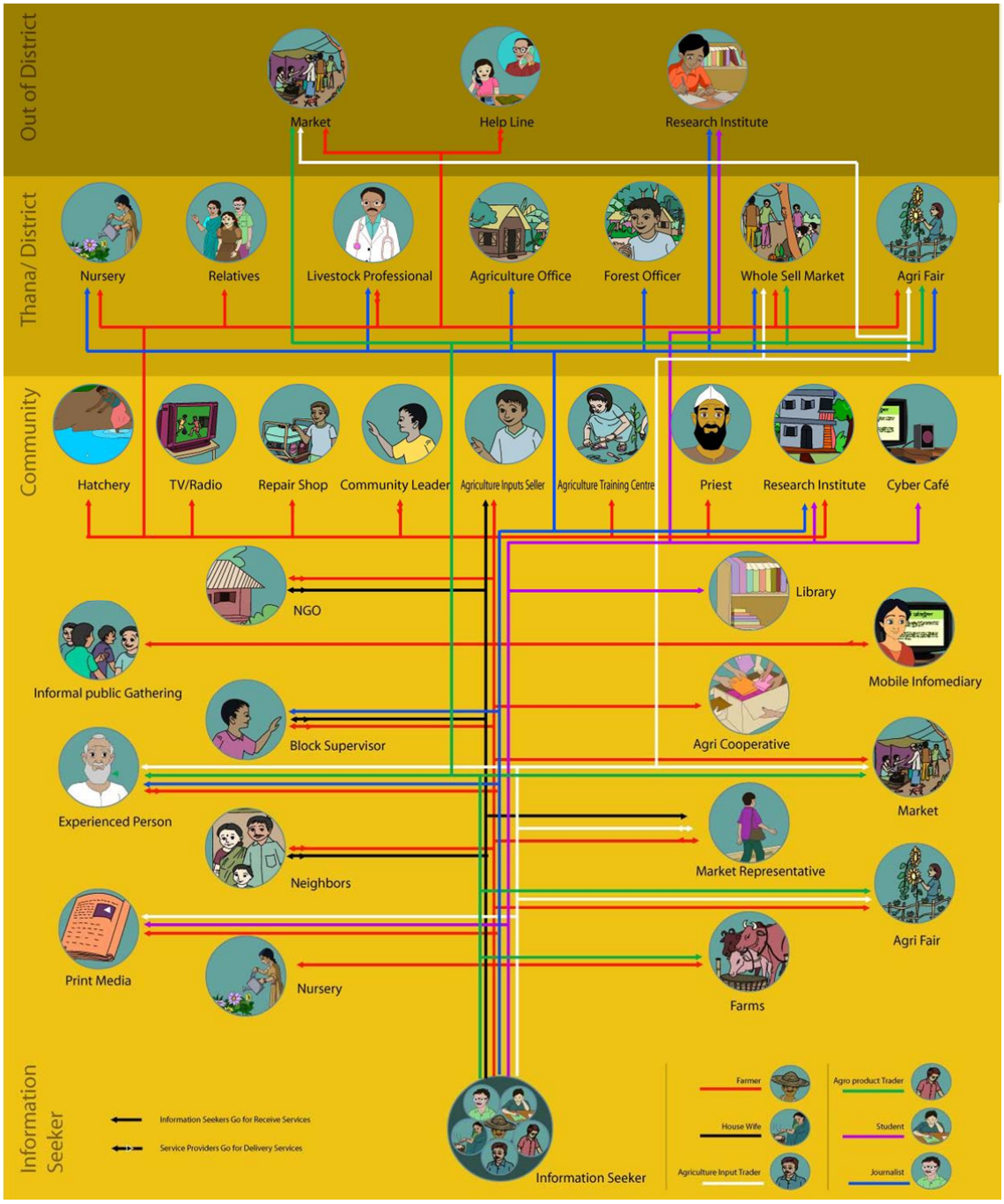
Sources (place/person)	Frequency	Channel	Relevance	Effectiveness	Major demerit	Major benefit
House-based gathering	Medium	Television	High	High		Latest knowledge and success stories
Local Agricultural tools repair shop	Medium	Face to Face	Medium	Medium	Scope of mis-information	Ease of access
Telecenter	Medium	CD-ROM, Internet, Help Desk	Low	Medium	Scope of mis-information	Immediate solution
Agri-helpline	Medium	mobile phone, iM, email	Medium	Medium	Scope of mis-leading due to improper description of problem	Immediate help with reference to source of service/ products
Self-learning	Medium	Radio, Print media, Internet, Packet of Agri-input (seed)	Medium	Medium	Lack of scope to check authenticity	Elaborate knowledge
NGO	Medium	Face-to-face	High	Mixed	Commercial motive harms local variety	Holistic support
Livestock Doctor	Medium	Face-to-face	High	Medium	Not available during office hour	Immediate support

Sources (place/person)	Frequency	Channel	Relevance	Effectiveness	Major demerit	Major benefit
Cybercafe	Low	Internet	Low	Low	Information is not available or not known to users	Instant access
Agricultural Field Programme [1]	Low	Face-to-face	High	High	Chemical based production is promoted only	Up-to-date knowledge
Upazila Agriculture officers (livestock, fisheries)	Low	Face-to-face	Medium	High	Infrequent availability	Up-to-date knowledge
Agro tools sellers	Low	Face-to-face	Low	Low	Lack of up-to-date knowledge	Information about new technology
Agricultural Fair	Low	Face-to-face	High	High	Inadequate frequency	Information about new technology
Training/Workshop	Low	Face-to-face	Medium	Medium	Theoretical only	Scientific knowledge is shared
Visiting Demonstration farms	Low	Face-to-face	High	High	No written document on “how to”	Inspiration and confidence building

[1] In a selected day a block supervisor, agricultural officer arrange a meeting at selected agricultural field and distribute fertilizer, seeds and necessary information

Sources (place/person)	Frequency	Channel	Relevance	Effectiveness	Major demerit	Major benefit
Agriculture research institutes	Low	Face-to-face	Medium	Medium	Difficult to locate the right person and get their time	Up-to-date knowledge and advice
Youth Development Training Centre	Low	Face-to-face	Medium	Medium	No demonstration	New ideas
Community leaders (Chairman, Members)	Medium	Face-to-face	Low	Low	Little idea	Can refer to right person
Library	Low	Face-to-face, Internet	Low	Low	Back-dated reading materials	

Figure 02. Information Ecology for the Community on Agriculture



2. Health

Health and healthcare related issues have been identified as most critical for the community's wellbeing. The participants identified both most occurred diseases and problems related to access to health care in the community. In the PRA sessions the communities identified the problems, for which they need information and support. These included:

1. Infectious Diseases 2. Fever and head ace 3. Malnutrition 4. Maternity Complexity 5. Diarrhea 6. Child Health 7. Leukemia 8. Eye Diseases 9. Medical advice 10. Dental problem 11. Rheumatic Pain 12. Acidity 13. Blood Pressure 14. Blindness 15. Obesity 16. Heart Diseases 17. Pneumonia 18. Mental problem 19. Allergy 20. Bronchitis 21. Hepatitis 22. Cancer 23. HIV/AIDS 24. Bird Flue 25. Ear ache	26. Stomach ache 27. Tension Vaccination 28. Awareness 29. preventive measures 30. Medical Directory 31. Physician 32. Ambulance 33. Chronic Disease 34. Drug Availability 35. First Aid 36. Health Insurance 37. Health Policy 38. Training 39. Blood Bank 40. Diagnosis 41. Quality Testing of drug 42. Reference service for Hospital 43. Information about reliable Maternity Clinics 44. Free Medical Services and Medicine 45. Citizen Charter of Govt. Hospital 46. Health related source for govt. Services 47. Doctors Database with specialized 48. Charges for Treatment 49. Time of treatment (How much time will take for recover

During the PRA the participants identified sources of information on health, which are presented in Table 02. The table shows the linkage of the information seekers with sources of information by a

number of explanatory variables. The sources are divided into three groups by frequency of use. The criteria for determining a source to fall into a particular group are: at least once in two weeks: high, at least once in a month: medium, at least once in a year: low. The sources presented in the table are according to relative frequency within a specific group, thus easy to understand which sources are most frequently used.

The PRA revealed that the most frequently visited sources may not be most relevant or most effective source of information. The reasons behind high frequency despite limited effectiveness identified by the PRA representative are ease of access and relationship of trust. The trust relationship here was not determined as "degree of trust" rather "number of people trust". It is obvious from the table 02 that people prefer to discuss their problem face-to-face and they are relatively less comfortable with use of technology. At first they all take information from family doctor over cell phone, then go to medicine doctor, then specialized doctors. Ranking of village doctor (100%), pharmacy (100%), medicine representative (100%), and elder relatives (100%), in the group of "High" show that participants like to use informal sources for getting information.

Print and electronic media (8 per cent) also play a major role to provide health information. People also believe and visit the traditional doctors for health facilities. Males prefer unani doctors, kabiraj (The Tribal are more likely to go to the Kobiraj because it is least costly), street medicine promoters and experienced patients whereas females prefer self applied treatment.

In general, people in the community still rely on information sources which are in their vicinity and face-to-face channels are the most preferable channels. The ICT based channels are getting gradually ground and their effectiveness and relevance are also at the middle. Mobile phone-based help line is getting popular among the communities.

The information ecology map for health (Figure 3) shows that community people prefer mostly information sources within their community, however, they go to next two levels for getting information, when need is urgently felt.

For health issues sources and frequency of information received by the respondents are Village Doctor (100%), Pharmacy (100%), Medicine Representative (100%), Elder relatives (100%), M.B.B.S Doctor (100%), Known Person (100%), Family Doctor (100%), Neighbors (100%), Homeopathy Doctor (37%), Help line (37%), mobile lady (20%), Upazila Health Complex (18.5%), telecenter (18.5%), Child Specialist Doctor (7%), NGO Clinics (DRAC, Bandhon)(11%), Family Health Complex (Sobuj Chata, Surjomukhi)(15%), Sadar/ District Health Complex (18.5%), Herbal Doctor(14.8%), Hujur /Imam (14.8%), Ojha / Boiddo (14.8%), hospitals/clinic located in Dhaka (20%), Rajshahi (7%), Nowga (3.7%), Bogra (7%), Out of Country (India) (3.7), Educated Radio/Television (7%), News Paper (7%).

Table 02: Sources and frequency of information received by the respondents

#	Sources (place/ person)	Frequency	Channel	Relevance	Effect-iveness	Major demerit	Major benefit
1	Family	High	Face to face	Medium	Mixed	Lack of up-to-date knowledge	Only source for exchanging traditional and experienced knowledge
2	Relatives	High	Face to face, mobile phone	Medium	Mixed	Not always up-to-date knowledge is shared	Only source for exchanging traditional and experienced knowledge
3	Neighbors	High	Face to face, mobile phone	Medium	Mixed	Not always up-to-date knowledge is shared	Only source for exchanging traditional and experienced knowledge
4	Pharmacy	High	Face to face	Medium	Mixed	Commercial motive harms local variety	Immediate benefit
5	Village Doctor	High	Face to face, mobile phone	Medium	Mixed	Commercial motive harms local variety	Immediate benefit
6	Private Hospital	Medium	Face to face	High	Mixed	Misguiding for commercial greed	Authentic information
7	Specialised Hospital	Medium	Face to face	High	High	Access is limited due to financial purpose	Effective for sharing latest information
8	NGO Hospital	Medium	Face to face	High	High	Not always specialized knowledge is shared	Authentic information

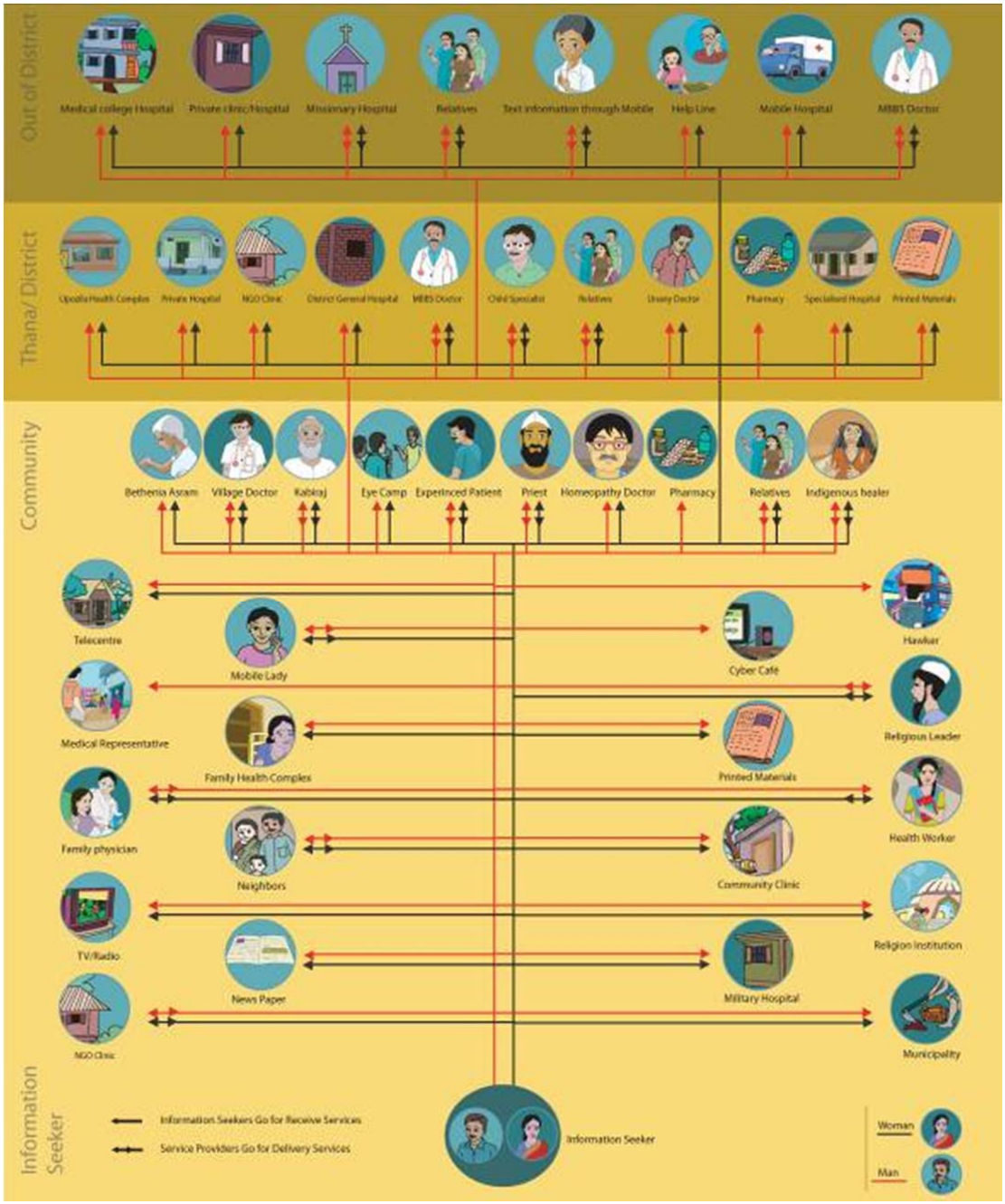
#	Sources (place/ person)	Frequency	Channel	Relevance	Effect-iveness	Major demerit	Major benefit
9	Help Line	Medium	mobile phone, Email	High	High	Availability	Authentic information
10	Mobile Lady	Medium	Face to face, mobile phone	High	Mixed	Availability	Authentic information
11	Kabiraj (Indigenous healer)	Medium	Face to face	Medium	Mixed	Misguiding due to lack of knowledge	Only source for exchanging traditional and indigenous knowledge
12	Eye Camp	Low	Face to face	High	High	Availability	Free of cost
13	Child Specialist	Medium	Face to face, mobile phone	High	High	Access is limited due to financial purpose	Authentic information
14	MBBS Doctor	High	Face to face, mobile phone	Medium	Mixed	Access is limited due to financial purpose	Authentic information
15	Telecenter	Medium	Face to face, mobile phone, Email	Medium	Mixed	Not always up-to-date knowledge is shared	Authentic information
16	Community Clinic	Medium	Face to face	Medium	Mixed	Not always specialized knowledge is shared	Free of cost
17	Health Worker	Medium	Face to face	Medium	Mixed	Misguiding due to lack of knowledge	Free of cost and accessibility

#	Sources (place/ person)	Frequency	Channel	Relevance	Effect-iveness	Major demerit	Major benefit
18	Religious Leader	Low	Face to face	Low	Low	Misguiding for commercial greed	Only source for exchanging traditional and indigenous knowledge
19	Upozila Health Complex	Medium	Face to face	High	Medium	Availability	Authentic information
20	District General Hospital	Medium	Face to face	High	Mixed	Availability	Authentic information
21	Missionary Hospital	Medium	Face to face	High	Medium	Not always up-to-date knowledge is shared	Free of cost
22	Priest	Low	Face to face	Low	Low	Misguiding due to lack of knowledge	Only source for exchanging traditional and indigenous knowledge
23	Military Hospital	Low	Face to face	High	High	Availability	Authentic information
24	Municipality		Face to face	Medium	Medium	Not always up-to-date knowledge is shared	Availability and fewer fees.
25	Religion Institution	Low	Face to face	Low	Low	Misguiding due to lack of knowledge	Only source for exchanging traditional knowledge
26	Family physician	High	Face to face, Mobile Phone	Medium	High	Not always specialized knowledge is shared	Immediate benefit

#	Sources (place/ person)	Frequency	Channel	Relevance	Effect-iveness	Major demerit	Major benefit
27	Family Health Complex	Medium	Face to face, Mobile Phone	High	High	Not always specialized knowledge is shared	Authentic specialized information
28	Medical Representative	Low	Face to face	Medium	Low	Not always specialized knowledge is shared	Immediate benefit
30	Indigenous healer	Low	Face to face	Medium	Mixed	Misguiding for commercial greed	Only source for exchanging traditional and indigenous knowledge
31	Homeopathy Doctor	Medium	Face to face	Medium	Medium	Not always specialized knowledge is shared	Specially for Child because of its softens
32	Experienced Patient	Medium	Face to face, Mobile Phone	Medium	Mixed	Misguiding due to lack of knowledge	Only source for exchanging experienced knowledge
33	News Paper	Medium	Reading	High	Medium	Lack of scope to check authenticity	Most effective channel for updated information
34	Printed Materials	Medium	Reading	Medium	Medium	Lack of scope to check authenticity	Most effective channel for updated information
35	Cyber Café	Low	Internet connectio n	High	Medium	Availability in all area is limited	Most effective channel for updated information

#	Sources (place/ person)	Frequency	Channel	Relevance	Effect-iveness	Major demerit	Major benefit
36	*Unany* Doctor	Medium	Face to face, Mobile Phone	Medium	Medium	Misguiding for commercial greed	Immediate benefit
37	Medical college	Medium	Face to face	High	High	Misguiding for commercial greed	Authentic information
38	TV/Radio	Low	Watching and Listening	High	Mixed	Lack of scope to check authenticity	Most effective channel for updated information
39	Bethenia Asram	Low	Face to face	Medium	Mixed	Availability in all area is limited	Free of cost

Figure 03. Information Sources and Mobility for health Information



3. Employment

In Bangladesh people use several sources for job information. Other than employment opportunities people also need counseling on a number of issues, which are listed below.

Problem/information Need for employment

1. Lack of skill for current job
2. Limited experience

3. Information of job circulation
4. Rules/Regulation/laws related to job
5. Preparing and submitting CV
6. Internship
7. Professional training
8. Reference
9. Job Switching

Among the sources Newspaper and Cyber café are mostly used. There is another derivative source of employment information is compilation of newspaper clippings of employment notices which is also very popular in Bangladesh. Some photocopier shopkeepers collects available newspapers and cut job advertisement and sell copy of those cuttings. Relatives, friends, teachers and supervisors also refer people for job which is also useful for many people. People also use sources like mobile internet, job fair, media centre, notice board, poster, radio, television as well. Table 03 shows detail information ecology of employment information in Bangladesh.

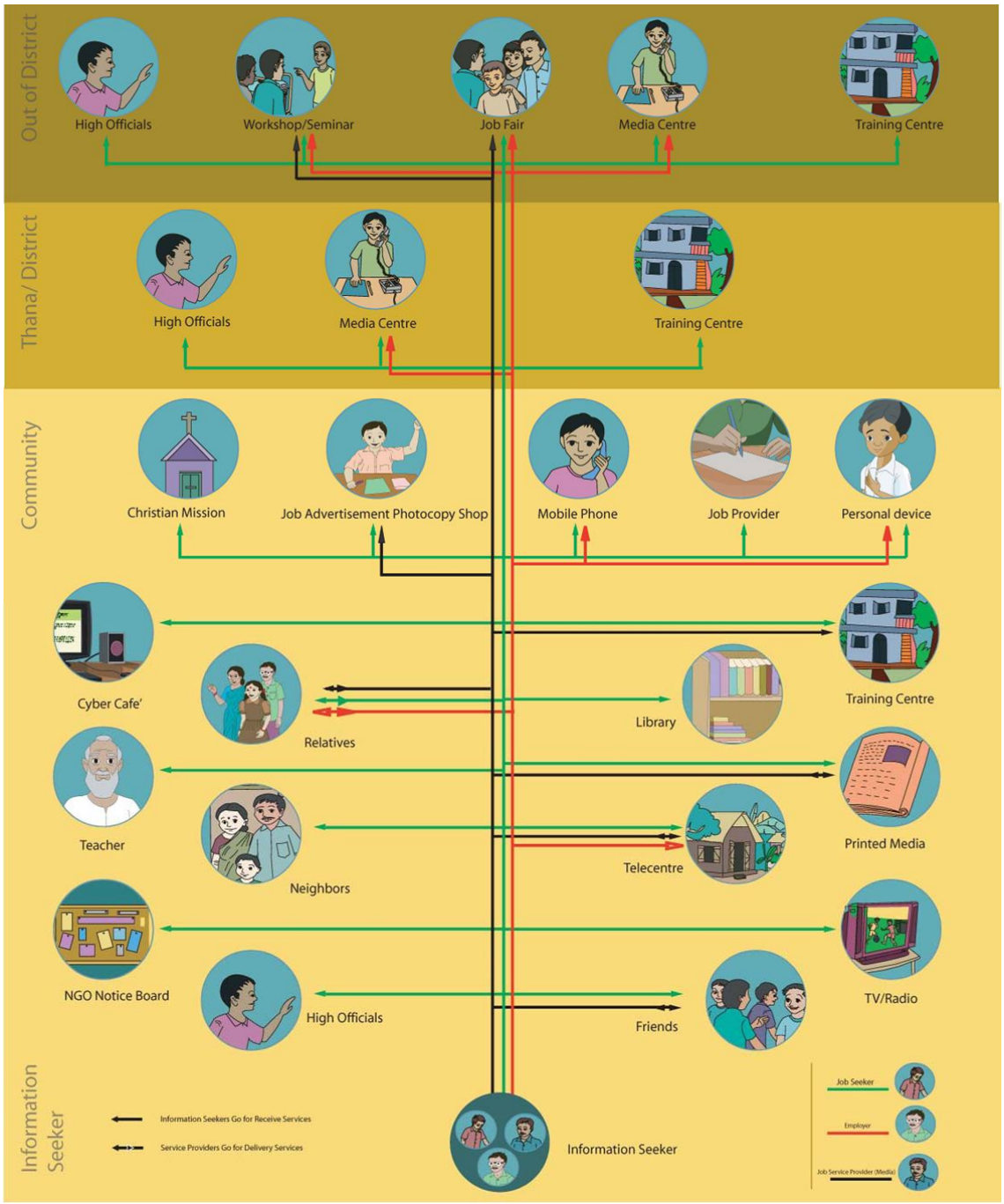
Table 03: Information ecology of employment information in Bangladesh

Sources (place/ person)	**Frequency**	**Channel**	**Relevance**	**Effectiveness**	**Major demerit**	**Major benefit**
Cyber café	High	Internet	High	High	Access is limited	Most effective channel for updated information
Photocopy Shop	High	Newspaper	High	High	Can provide advertized information from newspaper only	Most popular sources to the job seeker as information from all newspaper are available
Newspaper	High	Printed material	High	High	Can provide advertized information	Popular media
Relative/ Friends	Medium	Face to face or over phone	High	High	Available to those people who are advantageous	Authentic information

Sources (place/ person)	Frequency	Channel	Relevance	Effectiveness	Major demerit	Major benefit
Mobile Internet	Low	Mobile Phone	High	High	Detail information is costly	Very portable information channel
Notice Board/poster/	Low	Physical Visit	Medium	Medium	Authenticity of information	Available free of cost
Teacher/supervisor	Low	Face to face	Medium	High	Not applicable for all	Authentic information
Job Fair	Low	Face to face	Medium	Mixed	Inadequate frequency	Direct consultation with job providers
Radio/Television	Low	Radio/Television	High	Mixed	Very few information regarding job and also not very popular media regarding job information	
Media Centre	Very low	Face to face consultation	Mixed	Mixed	Service charge required and sometimes information may not be true	
Training Institute	Very Low	Face to face consultation	Mixed	Mixed	Only available to the trainee	Can provide relevant job information for a person

Sources (place/ person)	Frequency	Channel	Relevance	Effectiveness	Major demerit	Major benefit
Mission Notice board	very low in 1 centre	Physical visit	High	High	Requires physical visit	Free of cost

Figure 03. Information Linkage of Community for Employment



4. Education

It was argued by the participants of PRA that rural students do not get access to higher education mainly due to their lack in getting updates and timely information. It was found that the students need information on admission in different institutions, public examination result, scholarships and study loan facilities. Teachers need policy related information that they collect from the education department. In the PRA session BCRT found that the community people need education information specifically on the following issues:

Problem/information need

1. About the quality of educational institutions
2. Admission information in country and abroad
3. Cost of education in country and abroad
4. Accommodation facilities in different educational institutions
5. Scholarship for study
6. Coaching centre related information
7. Technical education system in country
8. Source and facilities for study loan
9. Public and private examination result
10. Distance learning
11. Computer learning facilities
12. Special education system and facilities
13. Preparation for public and private examination
14. Research information
15. Availability and source of educational materials
16. Education counseling

During the PRA, the participants identified sources for information on education, frequency of use, their effectiveness, which are presented in Table 04.

In general, radio-television (81%), education institutions (81%) and senior students (81%) are the prime sources of education information. Teachers (64%), print media (55%), and coaching centres (55%) also have a leading contribution as education information sources. More than one-fourth (27%) users visit cybercafé for the same problem or need. In few areas, telecenters plays a very important role for access to education information. There are few places where Missionary Father provides latest education information from website. Cybercafé, NGOs and print media are the popular sources to women for education information. Training centres and coaching centres are highly potential venue for seeking education information.

ICT can offer a lot in education sector. Students and teachers can be benefited enormously if their required information can be supplied through online channels. Moreover information on educational institutions, vocational training institutions may create huge value. Online admission form submission process in different universities can be another good step to reduce education access related cost.

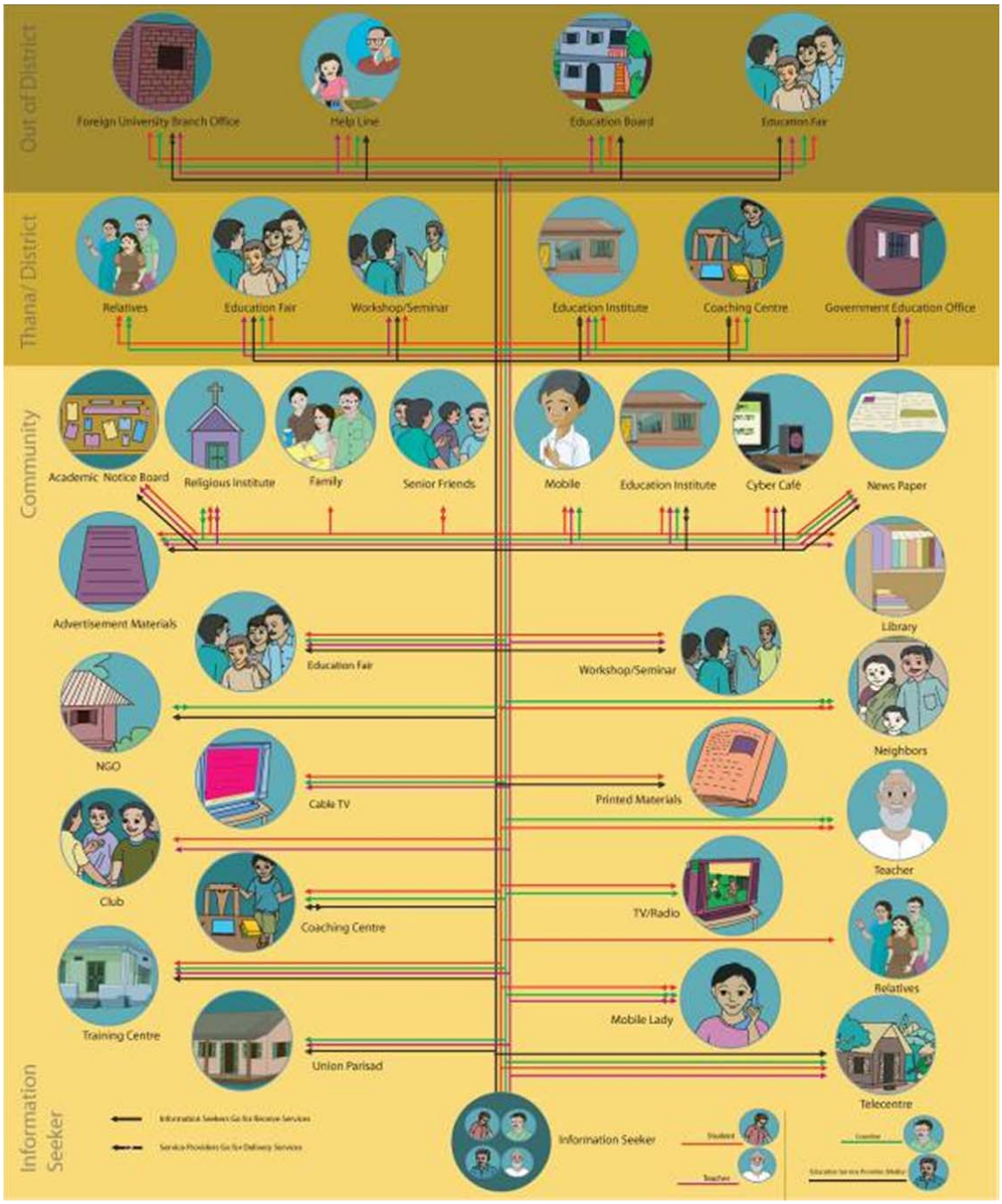
Table 04: Sources and frequency of information received by the respondents

#	Sources (place/ person)	Frequency	Channel	Relevance	Effective-ness	Major demerit	Major benefit
1	Telecenter	High	Face to face	Low	Medium	Information is not always updated	Immediate help with reference to source of service/ products
2	Mobile Lady	High	Face to face, Mobile Phone	Medium	Medium	Availability	Authentic information
3	Relatives	High	Face to face, Mobile Phone, Email	High	Mixed	Not always up-to-date knowledge is shared	Only source for exchanging traditional and indigenous knowledge
4	Radio/TV	High	Watching and Listening	High	Mixed	Lack of scope to check authenticity	Elaborate knowledge
5	Teachers	High	Face to face, Mobile Phone, Email	High	Mixed	Not applicable for all	Authentic information
6	Printed Materials	High	Reading	High	Mixed	Lack of scope to check authenticity	Elaborate knowledge
7	Neigh-bours	High	Face to face, Mobile Phone	High	Mixed	Not always up-to-date knowledge is shared	Only source for exchanging traditional and indigenous knowledge
8	Seminar/ Workshop	High	Face to face	High	High	Availability	Free of cost
9	Library	Medium	Face to face	High	High		
10	Union Parishad	Medium(Only teachers use the source)	Face to face	High	High	Accessibility, Difficult to locate the right person and get their time	Up-to-date information on education services

#	Sources (place/ person)	Frequency	Channel	Relevance	Effective-ness	Major demerit	Major benefit
11	Training Centres	Medium	Face to face	High		Only available to the students	Can provide relevant education information for a person
12	Coaching Centres	High	Face to face	Medium	Mixed	Only available to the students	Can provide relevant education information for a person
13	Club	Medium	Face to face	Medium	Mixed	Dominant participant may mislead	Effective for sharing latest information
14	Cable TV	Low	Watching and Listening	High	Mixed	Lack of scope to check authenticity	Elaborate knowledge
15	NGO	Medium	Face to face	High	Mixed	Commercial motive harms local variety	Holistic support
16	Education Fair	High (But once in a year)	Face to face	High	High	Theoretical only, Commercial motive harms local variety, Inadequate frequency	Holistic support
17	Advertise ment Materials	Medium	Reading	Medium	Mixed	Lack of scope to check authenticity	Elaborate knowledge
18	Academic Notice Board	Medium	Reading	High	High	Requires physical visit	Available free of cost
19	Religious Institute	Low	Face to face, Notice board	Medium	Mixed	Lack of scope to check authenticity	Elaborate knowledge
20	Family	High	Face to face	High	Mixed	Not always up-to-date knowledge is shared	Only source for exchanging traditional and indigenous knowledge
21	Friends/ Senior friends	High	Face to face	High	Mixed	Not always up-to-date knowledge is shared	Only source for exchanging traditional and indigenous knowledge

#	Sources (place/ person)	Frequency	Channel	Relevance	Effective-ness	Major demerit	Major benefit
22	Personal Device (communication towards relatives and fellows)	High	Mobile/ Telephone	High	Mixed	Lack of scope to check authenticity	Elaborate knowledge
23	Education Institute	High	Face to face	High	High	Commercial motive harms local variety	Holistic support
24	Cybercafe	Medium	Internet	High	Mixed	Fees	Instant access
25	News paper	High	Reading	High	Mixed	Lack of scope to check authenticity	Elaborate knowledge
26	Government Education Institute	Medium	Face to face	High	High	Commercial motive harms local variety	Holistic support
27	Foreign University Branch	High	Face to face, Email, Phone	High	Mixed	Commercial motive harms local variety	Holistic support
28	Help Line	Medium	Email, Phone	High	High	Not known to all users	Instant access, Immediate help with reference to source of service/ products
29	Education Board	Medium	Face to face, Internet	High	High	Accessibility, Difficult to locate the right person and get their time	Up-to-date knowledge and advice

Figure 05. Information Linkage of Community for Education



FEATURES OF PUBLIC ACCESS VENUES:

USE, USERS AND ACTIVITIES AROUND PUBLIC ACCESS VENUES

The major features of three types of public access venues (library, telecenter, cybercafé) are presented in Table 04. The features have been drawn on the basis of the information ecology mapping exercises in 9 locations. The features depicted here thus obviously incomplete compared

to the whole population of three types of venues. However, the features drawn here would facilitate designing research on impact of these venues.

Locational Diversity

The cybercafes are generally located in urban areas, where as telecasters are predominantly located in rural areas. On the other hand, libraries are available both in semi-urban and rural areas. Villages also have libraries located in educational institutions and communities initiated by local philanthropists.

Access by Social Groups

For understanding which types of venues are more public than others then a very interesting feature has emerged: library > cybercafe > telecenter, which means telecenter is more public than cybercafe and library. Telecenter as a public access venue is being used by users from various economic groups, professions, age and sex. The cybercafes are generally used by students, teachers and journalists. The libraries are used by generally students, teachers, and some house wives. Social model of telecasters makes ICTs accessible by the poor communities.

Services and activities:

In terms of number of services and diversity, the community people have understanding that the telecenters provide highest number of services including information services related to their livelihood (agriculture, law and human rights, healthcare, non-farm activities, employment information, disaster preparedness, awareness and education. Many telecenters provide ICT training. Furthermore, a number of IT enabled services are also provided by them (for example, photography, Blood Pressure and Weight measurement, Computer composing, prints). The cybercafés are generally providing access to internet, which are used by relatively more educated and ICT-knowledgeable user groups for job search, learning materials, games, news paper reading, sending news to newspaper, exchanging business information, exchanging letters between relatives, applying for diversity visa to US, getting results of public examinations, downloading different government forms etc. Some users are more advanced; they use ICT facilities for trading stocks online and also for banking. The libraries provide reading facilities and lending of books, periodicals. The use of ICT facilities in libraries is almost similar with cybercafes. However, additional activities are quite a few in numbers, which make them more a community place. Integration of different facilities like reading, internet browsing, entertainment, cultural exhibition etc. made the venue effective to the users. Telecasters are rather diverse, some of them are truly community place and others work only in service delivery mode.

Cost

The services offered by cybercafes are only on payment, whereas libraries and telecenters offer both free-of-cost and on-payment services. Specially, the activities both in libraries and telecenters are free of cost and create bondage and values among the villagers and provide awareness on many important social issues. The general users have perceptions that the cybercafes are costly for them.

In cases, where they can compare performance they prefer to go to telecenter, because they receive better assistance from the centre people.

Table 04. Features of Public Access Venues: Use, Users and Activities around Public Access Venues

Type of Venue	Cyber Café	Library	Telecenter
Use	**Internet browsing for:** job search, learning materials, games, news paper reading, getting results of public examinations, visiting social networking sites (face book), e-government services, visiting educational sites, online registration for submission of (diversity visa) DV form for migration to US, submission of job application, searching health information, searching information on agriculture, online registration for national cultural contest **Downloading:** songs in mp3 format and ring tone of mobile phone, different government forms, games, programming codes, admission form for educational institutions, video **IT enabled Services:** Photography, Video Editing, Computer composing, printing, video conference, Net to phone, chatting, blogging, online stock trading, online banking, on line bill	**Reading books and News paper** **Collection of statistical data** **Search for job advertisement from news paper** **Internet browsing for:** job search, learning materials, admission information, getting results of public examinations and admission examinations, visiting educational sites, online registration for submission of DV form, submission of job application **Downloading:** admission form for educational institutions **IT enabled Services:** chatting, printing **ICT training:** basic learning	**Internet browsing for:** searching information on agriculture, law and human rights, healthcare, non-farm activities, employment information, disaster preparedness, awareness, searching job, submission of job application, learning materials, news paper reading, getting results of public examinations, e-government services, for submission of DV form, submission of MPO form for teachers, searching share market information (Dhaka Stock Exchange) **Downloading:** songs in mp3 format and ring tone of mobile phone, different government forms, games, programming codes, admission form for educational institutions, video **IT enabled Services:** Photography, Video Editing, Computer composing, printing, video conference, Net to phone, chatting, blogging, online stock trading, online banking, on line bill payment, video conferencing, Scanning, Web page development, CD writing, Mobile Phone Recharge **Email**: opening email account, exchanging letters between relatives, sending news to newspaper,

Type of Venue	Cyber Café	Library	Telecenter
	payment, video conferencing, scanning, Web page development, CD writing, Conversion of video: VHS to VCD, Handy came to CVD and CD/DVD to CD/DVD, Mobile Phone Recharge, Internet connection at home and office **Email**: opening email account, exchanging letters between relatives, sending news to newspaper, exchanging business information, applying for diversity visa to US, for remittances **ICT training:** basic learning **Using application software:** Word processing, spreadsheets, PowerPoint **Sales:** CD, DVD, Games and Software, SIM card for mobile phone, accessories **Repair and maintenance**: PC Servicing, Mobile Phone Servicing **Other services:** Fax, Spiral Binding		exchanging business information, applying for diversity visa to US **ICT training:** basic learning, ((MS Office, Email, Adobe Photoshop, Elastrator, Multimedia, database, web design **Using application software:** Word processing, spreadsheets, PowerPoint **Sales:** computer, mobile phone set, CD, DVD, Games and Software, SIM card for mobile phone, accessories **Repair and maintenance**: PC Servicing, Mobile Phone Servicing **Other services:** Soil testing, blood pressure and weight measurement, Fax, Spiral Binding

Type of Venue	Cyber Café	Library	Telecenter
Activities	No other activities	Playing indoor games (Ceram, Ludu, Daba, Bagaduli, Plastic Building Set) Sports club Computer practice Cultural competition Primary schooling Learning songs Listening stories for children Art competition for children Learning sewing, handicraft, technical training, training on Poultry	School for poor pre-school children Watching TV programme, movie Livelihood camps: agriculture, health, legal and human rights, education
Users (by profession)	Student (above high school), teacher, businessman, journalist, service holder (banker, pharmaceutical co.'s representatives), unemployed youth, parents	Student, teacher, journalist, house wife, business people, retired persons	Farmer, pre-schoolchildren, student, house-wife, teacher, trader, service holder, government official, NGO worker, journalist, village doctor, unemployed youth
Users by sex	Male: Female: 90:10	60:40	55: 45

Type of Venue	Cyber Café	Library	Telecenter
User (by age)	15-18 years 19-25 years: almost half 26-35 years: one-third 36-45 years: one-sixth 46-60 years: a few 60 years and over	14 years and under: one-sixth 15-18 years: half 19-25 years: one-third 26-35 years; a few 36-45 years 46-60 years 60 years and over	14 years and under: a few 15-18 years: one-third 19-25 years: one-third 26-35 years: one-third 36-45 years: a few 46-60 years: a few 60 years and over
Users (by economic conditions)	High income: almost one-third Middle income: half Low income: one-fifth Poor:	High income: one-fifth Middle income: half Low income: one-third Poor: a few	High income: a few Middle income: one-third Low income: half Poor: one-fifth
Opening hours	0900 – 2200 hrs, 7 days a week	2:00 PM to 9:00 PM everyday (except government holiday).	0900 – 2100 hrs (semi-urban) 0900- 1730 hrs (rural)
Cost of Access	On payment	On payment	Some services and activities are free and others are on payment

Type of Venue	Cyber Café	Library	Telecenter
Level of Privacy[2]	Level 2-3	Level 1-2	Level 1
Location	semi-urban, urban	semi-urban, urban	Rural, semi-urban, urban
Access to and Quality of Internet	Satisfactory	Unsatisfactory	Unsatisfactory
Assistance	Assistance to learn how to use Internet only, no assistance for searching information	Assistance to learn how to use Internet only, no assistance for searching information, scope for peer learning	Assistance to find particular piece information through Internet browsing
Software use	Operating system Microsoft Windows, Microsoft Application software	Operating system Microsoft Windows, Microsoft Application software	Operating system Microsoft Windows, Microsoft Application software
Restrictions	Registration of identity No download and installation of programmes	Users can only download programs onto computers, take it to pen drive for install on their pc Users can download music, movies. Users can create content like web pages. There are no Content filters, Social networking sites like Face book are	No restrictions

[2] Level 1: No privacy, Level 2: neutral, Level 3: Complete privacy

Type of Venue	Cyber Café	Library	Telecenter
		allowed.	
Type of Internet connection	GPRS, Dial up DNS ZIP	EDGE, GPRS	Radio wireless, EDGE, CDMA, ADSL
Virus protection	Yes	Yes	In some places yes
Average daily Visit	50-150	≈100	≈20
Staff Composition	Only Male	Male-Female	Male-Female
Special Features	Only operators can operate CD-WR drive People need to wait for getting a free computer People do group work using computers	People do not have to wait for computer People do group work using computers	Equipments are not always in order Free of cost services available

Type of Venue	Cyber Café	Library	Telecenter
	(face book, chatting with relatives abroad Kids are not allowed in some venues Filtered water and toilet available Web cam photos of users for identification		

CHALLENGES

The major challenge for the public access venues is power crisis. In some places, the venues receive only two to three hours electric supply in its operating period. Although cybercafes have power backup facilities, most of the libraries can not afford it. The willingness to pay and ability to pay of the community is still low due to poverty and lack of awareness about the benefit the venues can bring to their livelihood. However, there is a systematic trend in rising the number of visitors to the telecenters. Although telecenters offer information services, they are not equally popular in all locations. A number of cybercafé owners mentioned about diminishing profit margins and their struggle to add new services for survival. The libraries are relatively safe in terms of financial sustainability as they are well proven social institutions and they can generate financial resources for various sources for continuation of activities. All the venues face shortage of quality human resources, and relatively high fluctuation. There is a severe dearth of skilled librarian and operators in cybercafes and telecenters. The venues have become supplier of skilled manpower to cities. Cataloging system in libraries is manual and valuable manuscripts are being destroyed.

	
(Entrance of the Venue)	(A view of PRA Session)
	
Fig: Helpline Cyber café, Bogra	Fig: Inside view of Helpline Cyber Café
	
Fig: 5 members of a family is chatting	(Voice and video) Chatting with relatives living abroad

More photographs of the session: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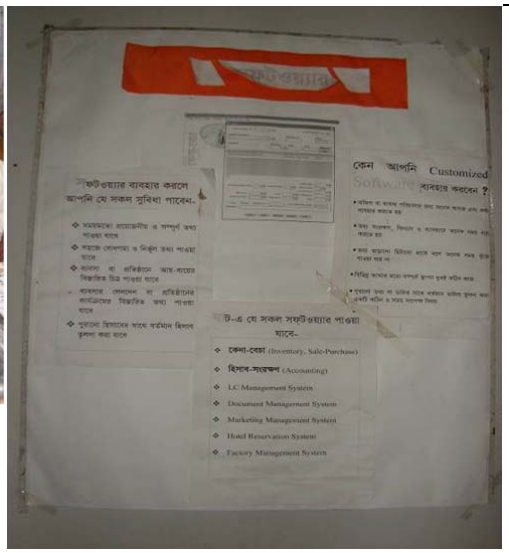
সেবাসমূহ:


কেন আপনি Customized
ব্যবহার করবেন ?
যাবে-
কেনা-বেচা (Inventory, Sale-Purchase)
হিসাব-সংরক্ষণ (Accounting)
LC Management System
Document Management System
Marketing Management System
Hotel Reservation System
Factory Management System


গ্রামীণফোন
grameenphone

Community Information Centre	Uchai Public Library
	
BRAC Uchai Adibasi Gonokendro Pathagar	Uchai Upajila Pathagar

	
Out look of the CD Care Cyber Cafe	
	

Customer Registration and receiving an identification card	
 	
Divider and distance between two computers and privacy	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NOTICE
১লা এপ্রিল ২০০৮ থেকে ক্লিক অনলাইন সাইবার ক্যাফের গ্রাহকদের সুবিধার্থে বর্তমান প্রতি মিনিট ০০.৫০ পয়সা থেকে কমিয়ে ০০.৩৫ পয়সা অর্থাৎ ২১/= টাকা ঘন্টা করা হচ্ছে। উলেখিত তারিখ থেকে সম্মনিত গ্রহকগন এ সুবিধা উপভোগ করতে পারবেন।
Browsing Rate
Minimum Charge 1-30 Min.....10.00/=
Next Per Min.....00.35/=
Voice & Video Chat
Voice.....FREE
Web Cam [1 Hour Minimum].....40.00/=
We need your cooperation to give you better service