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COMPETITIVE ANALYSIS OF TELECENTER MOVEMENT IN BANGLADESH

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Abstract

The Information and Communication Technology for Development (ICT4D) is a technology that is rapidly being adopted for the poverty reduction strategies in developing countries. Different ICT initiatives including telecenters had remarkable achievement for rural development in recent years. Most of the telecenters are established in urban or semi-urban areas. The telecenter initiatives were started in Bangladesh very recently, and are growing very fast. This emergence led to the motivation of this study and the need to assess the cause behind the obstacles and opportunities. The study was supported by fieldwork during November 2006 to May 2007 on eight different models of telecenters in Bangladesh. A sample of 144 respondents was interviewed from all relevant groups. Three research methods were used for this study: survey interviews, focus group interviews, and an analysis of existing data. The aim of the study was to identify services provided by the telecenters, further the opportunities and cause behind the success or failure of the projects. The study was also intended to examine the issues affecting community uptake and appropriation of ICT services for livelihood development of rural communities, and reasons of low adoption of ICT to the rural areas. This study was found five centers achieved their success by providing access to information to the rural communities, i.e. Village Information Center, ICT and Resource Centre for the Disabled, Amader Gram Giyan Kendra, Youth Community Multimedia Centre, and Amader Gram Health Center. The rest of centers were struggling for success and sustainability. This study found five centers achieved their success by providing access to information to the rural communities. The major groups (36%) of the telecenter users were in the 20-30 years age group, 36% of the users were women, 40% of the respondents knew about the telecenter from friends and relatives while none got this information from government sources. 40% of the respondents use the telecenters services at least once a weak and none found the services to be expensive. A significant number of users gained socially as well as in education from these services. The result of this study will be useful to decision makes in improving the services further and in the planning of new telecenters in other localities.

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Introduction

Telecenters are shared information and communication facilities that provide communities with telephone, fax and internet services as well as access to equipment such as cassette and video players, photocopiers and computers (Michiels 2001). In other words, a telecenter is a facility that provides a given community with information and telecommunication services, with the aim to achieve a variety of development objectives (Obra 2002). Telecenters are used in Bangladesh as information centers, knowledge centers, and information resource centers. In broad terms, the telecenter is also called multipurpose community center, public Internet access point, or information kiosks (Bossio, 2004). Bangladesh Telecenter Network (BTN), a coalition of telecenter practitioners in Bangladesh, was formally launched on December 6, 2007. BTN aims to set up 40,000 telecenters across Bangladesh by 2011 for building an ICT-based sustainable information and knowledge system for the poor and marginalized. Most of the telecenters were set up to improve information flow for rural people and provide knowledge for the improvement of livelihood among remote and largely subsistence communities. The telecenters are seen as a tool to bring the benefits to locations that have so far been suffering from their remoteness and lacking connectivity to the world's information society (Christof Jauernig, 2003). Most of the studies on telecenters movement to date have focused on operational and sustainability issues mostly using the theory of diffusion of innovations (Roman, R 2004). Many authors have advocated a focused approach in understanding the impact of ICT for rural development or the effects of ICT on the processes through which people were working (Gomez, R.1999, UN 2006, Madon, S 2005, Montealegre, R.1999, Walsham, G. 2006). Thus studies of the impact of ICT must be more user orientated since the success or failure of ICT applications like telecenters are determined by the extent to which they are utilized by the society (R.Thirumavalavan 2007). A common problem that has been experienced in many telecenter initiatives is a lack of sustainability that prevents centers from successfully staying operational in the long run and becoming independent from external support and subsidies (Christof Jauernig, 2003). Rajendra Kumar and Michael Best describes that the telecenters are bringing the benefits of ICTs to poor communities where the technological infrastructure is inadequate and the costs of individual access is relatively high (Rajendra Kumar,2007). The inadequate electricity infrastructure is a barrier to expand the telecenters in rural unelectrified areas of Bangladesh. The telecenters are operated mostly in urban areas in Bangladesh. The needs of rural and urban communities differ. So, the initial goals of the telecenters that are urban based, differs from the desire of the rural communities (Bailur, 2007a). The digital gap between the electrified and unelectrified areas still remains in Bangladesh. Most of the rural farming communities are staying in unelectrified areas in Bangladesh. The study found that all the telecenters were established in electrified areas in Bangladesh. Telecenters movements are needed to focus on the unelectrified and rural areas in Bangladesh. Telecenters initiatives are mostly focused on financial sustainability and social development, but there is a natural tension to fulfill these two objectives simultaneously (Kuriyan et al., 2006). The rural communities will have difficulties to obtain new technologies for their livelihood development (Bailur, 2007b). It is difficult to identify the successful telecenters in Bangladesh as the telecenters stared very recently and are donor-funded. But the success depends to a large extent on the motivated, creative, and hardworking center-operators. The telecenters appeared sustainable when the local communities are involved and supported from the beginning of the initiatives. They played an important role to create awareness to the other communities and acted as mediator to raise the center into successful. The study found the lack of transaction system for selling and buying the commodities is one of the important barriers to generate income for livelihood development of the farming communities. The online agriculture based marketing system can provide the opportunity to increase the income for the villagers. So, the online payment system could be important for the economic development and income generating option for the villagers through telecenters. They need to perform direct transaction to generate their income. No telecenters were found that provide such facilities in Bangladesh during study period. In this study, we were examined mainly the social impact of telecenters. This study was examined three key issues: sustainability, impact, and best practices on lives of rural community in Bangladesh. Three principle areas of the telecenters were selected

from different parts of Bangladesh; Information center, Knowledge center, and Health care information center.

In 2001 Pallytathaya kendra (village information center) and Amader Gram (our village) learning center had started its journey of telecenter initiatives. Telecentre movement in Bangladesh has been initiated by Development Research Network (D.Net) in August 2006 with a successful International Workshop on Building Telecentre Family in Bangladesh: A workshop for Social Entrepreneurs and Practitioners, held in Rangpur, northern district of Bangladesh. Fifty-seven organizations participated in the workshop to get hands-on idea about why and how to build telecentres and share experiences. All telecentre practitioners came under a single roof for the first time to talk about Mission 2011, which is about building telecenter in every village by the 40th anniversary of Bangladesh's independence. Finally the Bangladesh Telecenter Network established to explore the telecenter movement in Bangladesh. The growth of telecenters projects was found from the year 2004 in Bangladesh. The telecenters movements have been in operation for well over a year in many communities in Bangladesh. Need-based information such as agricultural information, educational information, market information, medical information, Internet services, computer related services, digital photo-studio services, advocacy, help-line, computer education, are provided by telecenters. Most of the contents are provided in local language (Bengali) to the communities. The study also found a positive impact of different rural telecenters for the livelihood development of the poor in Bangladesh. Especially the initiatives of D.Net and YPSA are remarkable in this respect. There are also remarkable ICT initiatives, Breast Cancer Treatment of Amader Gram, Health care information center at Bagerhat in Bangladesh. The study was identified the Range of Potential Services from the different projects in Bangladesh. Information is seen as useful such as birth certificate, passport application form, and driving license form to government development agencies, and service providers, and communities for development. Information and communication activities are a fundamental element of any rural development activity.

Methodology

The primary data and information was collected directly from the filed visit of the individual centers in different districts in Bangladesh. The visited districts were; Bagerhat, Khulna, Pabna, Bogra, Tangail, Chittagong, and Gazipur. The secondary data was also collected from the log book of the center, yearly report of the projects, different research papers, brochures, booklets, news letters, etc. Three research methods were used to conduct this study: survey interviews, focus group interviews and an analysis of existing data. We used both qualitative and quantitative research methods to collect data. The qualitative research methods were focus group interviews and semi-structured interviews with key respondents, and the quantitative research methods were surveys via structured questionnaires. Five different sets of questionnaires were designed and used for the research. The existing data was collected from center operators, and log-book of the centers. We conducted the field work during November 2006 – May 2007. Our main source of data was direct interviews with the center users, neighbors, beneficiaries, and center operators.

The study was conducted on eight different models of telecenters of eight different organizations and sample of 144 respondents was interviewed from all relevant groups from Eight ICT4D projects area. The interviews were conducted in local Bengali languages and translated into English for analysis. Five different sets of questionnaires were designed and used for the research. The sample included members from all relevant groups in the community, including women, young people, and the elderly and key respondents such as community leaders. An analysis was done on literacy level, age, awareness, services known by respondents, frequency visit to telecenters, cost effectiveness, gender of telecenter users, and impact of telecenters for development, and services requirement by the users. The table shows a list of the ICT4D project areas in Bangladesh shows in table 1. The percentages of the respondents based on questionnaire are shown in figure 1.

Table 1: List of selected ICT4D project areas for study

Center initiator	No.	Selected center for research
Development Research Network (D.Net): (www.pallitathya.org)	1	Village Information Center (VIC) or Pallytathaya Kendra at Mongla, Bagerhat
Young Power in Social Action (YPSA):(www.ypsa.org)	2	ICT and Resource Centre for the Disabled (IRCD), Chittagong city
	3	Youth Community Multimedia Centre (YCMC) at Shitakund, Chittagong
Bangladesh Friendship Education Society (BFES): (www.amadergram.org)	4	Amader Gram Giyan Kendra (Our Village Knowledge Center-AGKC)and Amader Gram health center (AGHC) at Srifaltola, Bagerhat
Grameen Communication (www.grameen-info.org/gc)	5	Rural ICT Centers (RIC) at Madhupur, Tangail
Grameen Trust (www.grameen-info.org/gdc)	6	Grameen Digital Center (GDC) at Mirzapur, Tangail
Grameen Phone (www.gp**cic**.org)	7	Community Information Center (CIC), Pabna, and Bogra
Practical Action Bangladesh (http://practicalaction.org)	8	ICT Center (ICTC) at Joydebpur, Gazipur

Respondents Number from eight initiatives

Development Research Network (D.Net) - VIC	42
Young Power for Social Action (YPSA) (IRCD & YCMC)	28
BFES – Amader Gram Knowledge Center	08
Grameen Communication - RIC	20
Grameen Trust - GDC	18
Grameen Phone – CIC	10
Practical Action Bangladesh – ICT Center (ICTC)	12
Operator of the center	06
Total	144

Study questionnaire

Five different sets of questionnaires were designed and used for the study.
Questionnaire A: Primary information of Principle Respondent
Questionnaire B: Demographic of Economic Information
Questionnaire C: Migration
Questionnaire D: Community Interaction
Questionnaire E: Questionnaire related to telecenter initiatives
Questionnaire F: Questionnaire to the operators of the telecenter

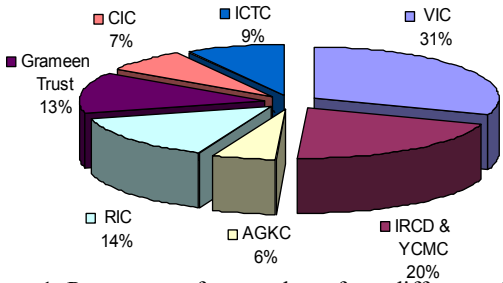

Figure 1: Percentage of respondents from different telecenters

Result and Discussion

We present here the results of the survey done at the eight telecenters.

Literacy level needed for using ICT centers

This study identified that most of the center users were school and college students (table 2). There were no users with variable of 'Can sign only' and 'Can't read or write'. So, no illiterate were found during the study period. The survey data is tabulated and showed that 53% of all the center

users interviewed had at least college level (12th standard). The next academic level was showed in School level (10th styandard) representing 32 % of the respondents. It is likely that the illiterate members of the community were discouraged in using these telecenter facilities as there is an acute shortage of friendly interfaces such as audio-visual interfaces that can aid their access to these resources.

Table 2: Education level of respondents

Level of Education	VIC	AGKC	YPSA	RIC	GDC	CIC	ICTC	Total	%
School level (10th Standard)	4	4	8	15	5	4	4	44	32
College level (12th Standard)	25	1	19	4	11	6	7	73	53
Graduate	3	3		1	2		1	10	07
Can Sign only									
Can read or write	10		1					11	08
Can't read or write									

Source: Compiled by author from questionnaire and log book of the center

Use of services by age

The research finding from the respondents is shown in table 3. The biggest groups of users (around 36%) were in 20 to 30 years age in the overall analysis. The second biggest group (29%) was in the less than 20 years age bracket, followed by 30 – 40 years age group (18%), 40-50 age group (10%) and 50 + age groups (7%). The Village information center of D.Net initiatives had largest member of users' age less than 20 years (Figure 2).

Table 3: Respondents age group in different telecenters in Bangladesh

Age (Years)	VIC	AGKC	YPSA	RIC	GDC	CIC	ICTC	Total	%
Less than 20	19	2	8	5	2	2	2	40	29
20-30	14	4	12	10	3	3	4	50	36
30-40	6	1	4	3	4	3	3	24	18
40-50	1	1	2	2	4	2	2	14	10
50+	2		2		5		1	10	7

Source: Compiled by author from questionnaire and log book

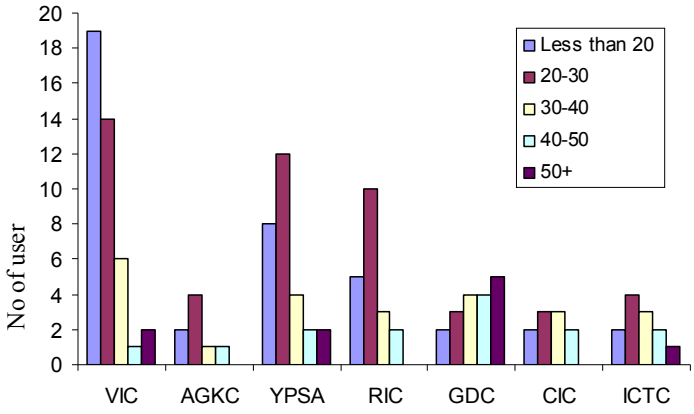

Figure 2: Different age group of users in different telecenters projects in Bangladesh.

Awareness of the existence of ICT initiatives and its services

Most people were aware of the existence of telecenter in their area. Rather than asking this obvious question, the researchers wanted to find out if the people knew how the center worked and if they were aware of all the types of services provided. Health & environmental information are the core services provided by two centers (Amader gram health care center, and YPSA). It represents 29 % of the services provided (table 4). The next highest service (14%) provided by another two centers

(Pallitathya kendra, and rural ICT center). The study found that the agricultural and educational information jointly second highest proportion (15.5 %) of the total surveyed in comparison with other services from photography (14%), and commercial phone services (8.5%). The research examined that several projects provided different services. The Grameen Digital Center (GDC) is providing internet subscription to the local communities and offices. They are also provided educational information, computer training, computer compose and printing. The Rural ICT Center (RIC) is providing digital photo-studio services, and mostly computer training. Presently they don't have any kind of information services. The research found that the CIC at Pabna, and Bogra district is providing mostly the Flexy load (Mobile pre-paid card of Grameen Phone).

Table 4: Services received in one month by center amongst the user group

How many persons use center in last month?	VIC	AGKC	YPSA	RIC	GDC	CIC	Total	%
Agricultural Information	11		56				67	9
Health & environmental information		120	100				220	29
Educational information					50		50	6.5
Business information								
Soil/Water test	5						5	0.5
E-mail/Internet services			36		20	1	57	7
Commercial phone service	1					65	65	8.5
Photography	58			45			103	14
Government forms			26				26	3
Market and Price information								
Computer training		16	27	8	10		61	8
Help line	12						12	2
Video services	1		3				4	0.5
Computer compose	23				1		24	3
Weight & Height Measurement	14						14	2
Music competition			53				53	7

Source: Compiled by author from the log books of VIC, AGKC, YPSA, RIC,GDC, and CIC

Services known to respondents by center amongst the user group

The results were varied in table4 with 40% indicating that they knew via relatives/neighbors/children/friends, around one third (35%) knew it center operator, a quarter (18%) through signboard/advertisement, 21% through others (included news paper, workshop, fair etc). The study was found that no respondent get primary information from the government officials from their area (table 5). This trend is understandable because the rural communities in Bangladesh are close-knit and information is usually exchanged during informal gatherings.

Table 5: Services known to respondents

How did you know about the center	VIC	AGKC	YPSA	RIC	GDC	CIC	ICTC	Total	%
Relatives/Neighbors/Childr en /Friends	19	2	12	6	6	8	8	59	40
The Center Operators	16	4	10	10	7	2	2	55	35
Government officials	0	0	0	0	0	0	0	0	0
Hoarding/Advertisement	6	0	5	4	4	0	2	21	18
Others (news paper, workshop, fair, etc.)	1	2	1	0	1	0	0	5	7

Source: Compiled by author from questionnaire

Frequency of use telecenter

Amongst those that are currently using ICT services, we further asked about their frequency of use. The results were found in table6 that 10% use the services every day, 23% use it 2 or 3 times a week, 7% use it once a week, 14% use it 2 or 3 times a month, 7% once a month and 31% has no response on this question.

Table 6: Frequency of use of the center by the responded

How frequent do you use the center	VIC	AGKC	YPSA	RIC	GDC	CIC	ICTC	%
Everyday	7		7					10
2-3 days per week	9	5	10	2	5			23
Once a week	1		5		4			7
2-4 times per month	4			5	4	6		14
Once a month	2	2		4		1		7
Rarely	1				3	1	6	8
No response	18	1	6	9	2	2	4	31

Source: Compiled by author from questionnaire

Cost of using ICT services from the center

Author compiled the questionnaire about the cost using ICT services from the center and the results showed in table7 that 68% thought the service was 'very cheap', 24% indicated 'cheap' and 7% indicated it was 'reasonable'. In total, the results show there is no answer of very expensive and expensive from the respondent. It indicates that the services provided by the different kinds of telecenters are providing their services with very cheap price.

Table 7: Response on services of center by the respondent

Price of different services at the center	VIC	AGKC	YPSA	RIC	GDC	CIC	ICTC	Total	%
Very Cheap	35	7	27	12	12		1	94	68
Cheap	5	1		7	6	9	5	33	24
Very Expensive									
Expensive									
Reasonable	2		1	1			5	9	7
No response						1	1	2	1

Source: Compiled by author from questionnaire

Use of services by women

One of the important findings was come out from the research about the extent of use of ICT initiatives by women. The results are shown in Figure 3. The research findings from the 'user-log data' were shown that on average 36% of users are women from over all users of centers. The VIC, at Mongla, Bagerhat, Southern district in Bangladesh, of D.Net was the highest percentage of women users (with 63% and 182 female in contrast to 116 male users). It study found cause behind this achievement was motivated and hardworking center operators and mediators.

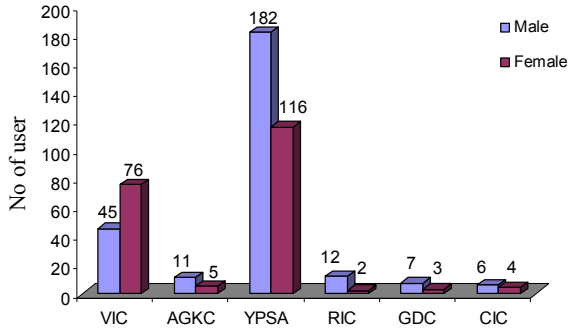

Figure 3: Gender distributions in different telecenters projects in Bangladesh.

The ICT has assisted to increase the knowledge of the rural communities

We asked the 'user-group' how ICT has impacted on their lives and the results show that a high proportion (31%) of respondents indicated they use ICT services to communicate with family and friends (table 8). Around 30% indicated it enhanced their education. In addition to the survey results, the respondents stressed that ICT has greatly assisted their knowledge and idea about new communication and technology.

Table 8: How ICT4D initiatives helping communities

In what ways has the ICT4D initiatives helped in your career?	VIC	AGKC	YPSA	RIC	GDC	CIC	ICTC	Total	%
Easier and faster communication with family and friends	20		12	6		4		42	31
Easier and faster communication with working colleagues			2	1				3	2
Enhance my education	15	6	15	4				40	30
Enhance my business	3			2		6		11	8
Enhance my idea about new communication and Technology	12	2	12	3	4	1		34	25
Helped in farming	6							6	4

Source: Compiled by author from questionnaire

Service requirement by respondents from existing telecenter

The respondents were asked to provide their need and requirement of services from the center of existing facilities and services. The study found the most respondents wanted the agricultural information (table 9) from the telecenters.

Table 9: Services needs from the center by the respondent in one month.

Required services	VIC	AGKC	YPSA	RIC	GDC	CIC	ICTC
Agricultural Information	4	3	10	2	4		3
Health & environmental information	1		7		2	6	2
Educational information			5	4	5		2
Business information		1	2			5	
Soil/Water test			6	5	3	2	1
E-mail/Internet services			4				4
Commercial phone service			6				
Photography			7		4	8	1
Government forms			3	2			2
Market and Price information		2	5			4	
Computer training			5				
Help line		4	5			9	1
Sewing training			3	4			
Daily news paper	1	6	4	2		4	
Poultry/Fish Cultivation	1	2	4	6	6	2	3

Source: Compiled by author from questionnaire

The study also found a positive impact of different rural telecenters for the livelihood development of the poor in Bangladesh. Especially the initiatives of D.Net and YPSA are remarkable in this respect. There are also remarkable ICT initiatives, Breast Cancer Treatment of Amader Gram, Health care information center at Bagerhat in Bangladesh. The study was identified the Range of Potential Services from the different projects in Bangladesh. Rural areas are often characterized as information-poor and information provision has always been a central component of development. The rural communities in Bangladesh typically lack access to information vital to their lives and livelihoods. The study was found that telecenters were able to bridging the digital gap and provide access to information for the social mobilization and development in Bangladesh. The study was found the majorities of the villagers were lack in aware of access to information and confused to get benefit from telecenter initiatives.

The research process brought awareness to people in villages who did not know about ICT services. By conducting this research and soliciting feedback from users and involved stakeholders, operator of the project by the communities has been increased. The research process was a major activity in each of the eight stations, which led to further awareness of ICT and its services it provides. It needs to be noted, however, that it is essential to communicate back to the

communities the major research results and suggested follow up actions. This will bring home to the communities that their feedback is essential and that Center will act on the lessons it learns.

Constraints and Recommendation

Some of the constraints to telecenter initiatives in rural areas are surmountable while others require a shift in both human and organizational communication and working patterns which may take longer time to change. ICTs rely on physical infrastructures (electricity, telecommunications, etc.) and even when such infrastructures are in place, difficulties arise when they are poorly maintained or too costly to use. Without infrastructure of electricity and telecommunication, ICT can do very little and rarely at the village level in Bangladesh. They also are dependent on the skills and capacity necessary to use, manage and maintain the technology effectively. Matching the most appropriate communications technology with people's needs and capabilities is a crucial task for ICT providers.

Electricity

The electricity is an absolute prerequisite for the use of modern information and communication systems. In Bangladesh 55.5% villages are unelectrified till 2003 (REB 2003). The present scenario of village development services is inadequate with voltage fluctuations, low voltages, and load shading to provide ICT based information to the villagers. The study observed that without the development of electricity in the rural areas, it is very difficult to establish and maintain any telecenter for rural development in Bangladesh.

All the telecenters are located in the electrified village of the country. It is recommended that the center could be expanded to other unelectrified areas in the Countries. However, proper consultation with various stakeholders, namely village leaders, and elders in the surrounding villages are needed before setting up the initiatives/center in the area in country. The alternative or renewable energy could be powered to the telecenters projects.

Telecom Infrastructure

Telecommunication infrastructure is one of the integral parts of the ICT. But, this infrastructure is not yet built in the rural areas of Bangladesh. Without the telecommunication infrastructure is almost impossible to run the rural telecenters. The study recommends the telecommunication infrastructure should be liberalized and set up in the rural areas as early as possible. The existing analog frequency of telephone sector should also be converted into digital switch and transmission in the urban and semi-urban areas. The internet infrastructure, such as wireless connectivity could be considered for uninterruptible internet connectivity in the telecenters projects. The private sectors can be encouraged to build the telecommunication infrastructure in the rural areas in Bangladesh.

Local Language and content

We studied on different internet contents of different telecenters initiatives, most of the contents had seen complex and difficult to be easily understood by the rural communities. The internet content of the initiatives needs to be user friendly and easy to use for all. The study found that need based information is essential to improve the livelihood of the rural communities. Audio-visual could be alternative content for the illiterate users.

A large number of populations, mostly farmers and women, are illiterate. These people lack the basic skills required to harness the benefit of ICT. The telecenters can initiate moves to education to the villagers through electronic media like e-learning, and e-education. Farmers and other communities of the rural areas are usually familiar with the local language (Bengali) only. All the application software, the agriculture related information, and market information must be available in local language. The initiative should take to provide alternative means of delivering information through CDROM, DVDROM, printed materials, community radio, and linkage media outlet to the rural illiterate people.

Manpower

Shortage of skilled and even semiskilled manpower in ICT to rural development is to be high in Bangladesh. In order to make effective use of ICT to rural development, training and capacity building on these subjects must be an integral part of all extension programs. All users of ICTs have to be trained in the use, application and maintenance.

Conclusion

This study examined the impact of ICT services on the lives of the grass-root population and found some telecenter initiatives has improved the lives of rural people where it has reduced the digital gap between haves and have not. This study suggests to increasing the agricultural productivity benefits the poor and landless through their relevant information, income generating opportunities, and employment opportunities. As the vast majority of poor people live in rural areas and derived their livelihoods directly or indirectly from agriculture, support for farming should be a high priority for upcoming and existing telecenters initiatives in Bangladesh. The center needs to deliver useful information to the farmers in the form of crop care and animal husbandry, fertilizer and feedstock inputs, droughts mitigation, pest control, irrigation, weather forecasting, seed sourcing and market prices. Universities could play a significantly broader role in the world's efforts to employ ICTs for sustainable development and poverty reduction (Raul Roman 2003). The university could contribute through research based on the community's requirement and existing problem related to farming, and organization framework needs after assessment and provide a package to telecenters movement for rural development. As ICT alone is insufficient for the livelihood development of the poor, it needs to be integrated improved technologies and infrastructure suitable for the rural communities. A network could be developed among practitioners, universities and researcher organizations to sustain the ICT initiative for long run in Bangladesh.

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