Planning of Integrated ICT Centre in a Rural Area for Development of Rural Communities

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Abstract

Due to ever-increasing population, food requirement is increasing but cultivable land is decreasing as new dwelling houses, roads, markets, and industries are being constructed both in rural and urban areas. Increased agricultural production is no more possible using traditional ways and means. Most of the rural farmers are marginal and small and they are lacking information as to how production can be increased substantially using their limited resources. Many of them are illiterate and require special attention in selecting information tools and materials. Close supervision and guidance are also necessary for the farmers in their efforts to increase production and to alleviate poverty. Govt. extension system is not effective due to lack of sufficient manpower and required fund allocation. Private sector initiatives with funding from national and international donor agencies and in association with Govt. extension system are essentially needed. Non-agricultural development activities such as food security; health, nutrition and disease control; children and mothers’ health care; family planning; education and skills; human and property rights; rights to information; organizational rights; gender issues; transportation and marketing; protection of environment and biodiversity are to be done simultaneously to make all development activities sustainable.

For dissemination of information an integrated ICT centre, comprising a low-cost and simple internet connectivity (with edge modem connected to the USB port of the PC); community radio listening and television watching; multimedia display; a library of printed materials, audio cassettes and CDs and a digital photo studio, is suggested. The centre will be able to provide information service along with cell phone, internet, e-mail, e-learning, e-governance, e-marketing, photo printing, photocopy, library and training services. Adequate number of trained manpower will have to operate the centre. Initial funding by donors may be required to equip the centre with necessary materials and facilities and running the centre for a couple of years; after which the centre is expected to be self-sustained. The centre will collect information from different sources such as websites, radio and TV broadcasts, community radio programs, success stories, universities and research institutes, Govt. organizations, NGOs, experts in relevant areas, extension workers, community trainers, etc. The collected information is to be sorted and processed according to the demands/requirements of the communities. Information needs are to be determined through group discussions with various communities and information materials are to be prepared in local language. Participation of the target people/community has to be ascertained in the ICT development and implementation process. Linkage with the organizations and personnel working in the filed of ICT development has to be established so that the development plans-strategies-activities of the centre can be modified according to the lessons learned by them.

Keywords: ICT centre, Rural communities
Introduction

Bangladesh, with an estimated population of almost 149.7 million (World Bank, 2006), is the largest of the least developed countries. 75 percent of the total population lives in rural areas, virtually all of them making their living exclusively or substantially from agriculture. 52% of the total labour force is engaged in agriculture. Contribution of agriculture sector to national GDP is 23.5% (BBS, 2006). So the central point of any rural development programme is agriculture.

Agriculture

Due to ever-increasing population, food requirement is increasing but cultivable land is decreasing as new dwelling houses, roads, markets, and industries are being constructed both in rural and urban areas. The country loses about 80 thousand hectares of land annually from agricultural use due to human settlements, rapid growth in urbanization, erosion of rivers, construction of new roads and broadening of the existing ones and for various other developmental activities. Practically no extra land is available for cropping. Increased agricultural production is no more possible using traditional ways and means.

The availability of large numbers of poor laborers and the fragmented character of many landholdings has perpetuated a labor-intensive style of agriculture. Out of the total farm holdings of 15.09 million, the marginal (0.05-0.49 acre), small (0.05 - 2.49 acres), medium (2.50 - 7.49 acres), large (7.5 acres and above) holdings account for 38.63, 49.85, 10.34 and 1.17 percent, respectively. The landless holdings (absolute landless) accounts for 14.03% of 28.17 million total holdings (BBS, 2005). Per capita availability of cultivable land is only 0.14 acre, and the average farm size is 1.50 acres. Landless people are also dependent on farming. Huge number of small landholdings with limited resource poses a big threat on modernization of production system (Nazrul Islam, 2008).

Bangladesh has made sustainable progress in achieving its goal of food grain self-sufficiency. It is now facing the challenges of maintaining and expanding on its achievements. Presently, efforts to increase agricultural production require a significant increase in input level and cash investment. Farmers are thus compelled to be indebted to procure those costly seeds fertilizers, pesticides, irrigation water, machineries and other equipment at increasing quantities and higher rates beyond their capacity. But at the time of harvest, the produce/products do not make profit and even do not cover production costs. In fact, it has been enhancing food insecurity at household level.

On the other hand, food security has become a major concern for the country's intelligentsia and policymakers in the wake of unusual price hike of food items in domestic and international markets. To achieve immediate gain, hybrid seeds are being introduced with private-public patronization (Nazrul Islam, 2008). The country has begun to experience various problems related to hybrid rice.

In such a situation agricultural production system has become very much complex. Most of the rural farmers are marginal and small having limited resources. In order to increase production substantially, each and every farm has to be given attention and proper guidance with appropriate information. Govt extension system is not effective due shortage of manpower and lack of fund. To ensure food security, Govt. should should take immediate measures to strengthen extension system. Private sector initiatives with funding from national and international donor agencies and in association with Govt. extension system have become very much essential.
The rural people are already deprived of their due share of the national wealth and resources (Khan, 1997). Providing an extensive information support in various forms to the rural people is highly crucial for changing their attitudes and economic conditions and raising their living standard.

**Education**

The literacy rate in Bangladesh is 48.4% for the population aged 7 plus and of 62% for the population aged 15 plus. There are about 78,363 primary schools in Bangladesh and among them 37,671 are government primary schools. Among 13,275 secondary schools in Bangladesh, only 317 are government secondary schools. There are also 3287 non-government junior secondary schools in the country.

The Government of Bangladesh is implementing the Second Primary Education Development Program supported by 11 development partners, with ADB as the lead agency. Launched in July 2004, PEDP-II aims to provide quality primary education to all eligible children in the country (ADB, 2006). The improved quality of education is helping to contribute to human development and improved status of women by increasing the number of students qualified for higher education, improving living standards and health, reducing population growth, and providing people with means of engaging in productive employment (ADB, 2006). The ADB project is helping to establish an effective, community based post-literacy and continuing education program which will increase literacy skills, social awareness, and income-generation capacity for learners in rural areas of Bangladesh who have acquired basic literacy skills. Approximately 1.6 million learners will be benefited including 50 percent women beneficiaries (ADB, 2006).

Different Education Commission Reports put emphasis upon the importance of library in education and strongly recommended for the establishment of libraries in every primary and secondary schools in the country. Unfortunately, the government of Bangladesh did not take any initiative. There is no national organization or central coordinating body for providing training programmes for the school librarians of Bangladesh. National Academy for Education Management (NAEM) has been proving continuing education programmes for college librarians of the country.

**Health Care**

The government introduced the Health, Nutrition, and Population Sector Program for 2004-2006, under which field activities in population and health are managed separately. The government aims to reduce its current 1.8 per cent annual population growth rate in an effort to promote sustainable socio-economic development and reduce poverty. The Ministry of Health and Family Planning was responsible for developing, coordinating, and implementing the national health and mother-and-child health care programs. In the late 1980s, government health care facilities in rural areas consisted of sub district health centers, union-level health and family welfare centers, and rural dispensaries. Some of the services, however, were largely nonoperative because of staffing problems and a lack of support services. A union-level health and family welfare center provided the first contact between the people and the health care system and was the nucleus of primary health care delivery. In spite of government plans, the gap between rural and urban areas in the availability of medical facilities remained wide.
Information Need of the Rural Community

Demand and patterns of information support may vary depending on the category of community people and their occupations/livelihoods. The primary occupation of the rural people is agriculture. Generally a village community may consist of literate and illiterate farmers, businessmen and small traders, teachers, school and college students, local leaders, employed and unemployed youths, mothers, children and adolescents, physically handicapped and disabled, extension and health workers, development workers, medical practitioners, etc.

In general rural people need support and assistance for food security, safe water, technologies for increased agricultural production, better nutrition, health and sanitation, better education, access to public and private sector services, medical and health care services, prevention and control of social problems, legal aid service, preservation of natural resources, prevention and control of environmental pollution, sports and recreation and above all access to information.

Agricultural Information

Farmers need information on how to increase agricultural production; how to grow better crops; how to raise better animals and poultry birds; better ways of farming; how to protect crops from insects, pests and diseases; how to protect animals and birds from diseases; availability and prices of agricultural inputs; availability and prices of fertilizers; fertilizer doses and timing of application; availability and prices of machines for farming; weather forecasts; harvesting and post-harvest processing of crops; crop storage techniques; marketing of agricultural produce for higher price; access to extension workers/advisory services; finance/credit for the people under poverty-line in order to rebuild adequate resources for increased income; finance/credit in case of crop damage due to natural disaster; finance/credit in case of death of poultry birds due to bird flu; and finance/credit to poor but meritorious students.

Fishing community needs information on the issues related to fish farming and fish production. Unemployed youths need information on job opportunities. Teachers and students need information resources for their educational attainments. Some of the rural families may be engaged in handicrafts, bamboo crafts, pottery, sewing and embroidery. These people need information on the better design, quality standards and better production technology.

Health, Food and Nutrition Information

Health, food and nutrition are the primary concern of all categories of people. Public health care services are almost nil in rural areas. The people should have access to information on good nutrition for better health; sources of better nutrition; good and balanced diets; safe water to drink and wash; prevention of malnutrition and diseases; good health practices; good sanitation; child and mother health care; family planning and health education.

Concerted primary healthcare activities with community development efforts should be undertaken to improve the overall living condition of the people.

Information Media and Dissemination

Information can be stored in various forms such as printed on paper, audio cassettes and CDs, video CDs and electronic database stored in internet servers.
Printed information may be obtained from different sources in the form of books, publications, journals, research reports, newspapers, newspaper supplements, news bulletins, magazines, booklets, leaflets, etc. Illiterate people, who is unable read and write, cannot achieve direct benefit from printed information.

Information on community issues is not presently available in audio cassettes and CDs. But the concerned institutions, who work for the rural poor, should consider producing audio cassettes and CDs containing their message to the rural farmers. Radio talks and drama series, specially written and broadcasted for the rural working community, can be copied to the audio cassettes and audio CDs by the rural ICT centres for community use. Some of the institutions, working for the rural communities, produce video CDs. But the use of these CDs is confined and not available for use by the rural farmers. TV talks and drama series, which are telecasted for the rural working community, can be copied to the video CDs by the rural ICT centres for community use.

Agriculture Information Service (AIS) An informative and educative agency dedicated to dissemination of information to farmers in general. It uses the materials developed by the Department of Agricultural Extension (DAE) and the Central Extension Resource Development Institute (CERDI). It publishes pictorial magazines, newsletters, books, leaflets, etc and distributes educative and training materials. Moreover, it produces documentaries and screens them in rural areas and also conducts radio and television programmes on agricultural matters. AIS should take initiative to produce audio and video CDs for the rural farmers.

Information can be disseminated and communicated through
- Access to printed information
- Access to information in the form of audio cassettes and CDs and video CDs
- Access to mass media like radio and TV;
- Distribution of appropriate news sheets, leaflets, handouts and paper cuttings.
- Display of information as posters, banners, notices, etc. at appropriate locations at appropriate time
- field days, farmers’ rally, seminar, workshop and training
- demonstration of technologies at appropriate places with the participation of beneficiaries;
- Announcement through radio and cable TV
- Organizing group discussion meetings on topics of particular interests
- Demonstrations on the use, application and benefits of information resource materials
- Display of audiovisual documentaries and success stories

Technologies and new information are generated by different research institutions and disseminated by the public sector extension agencies on crops, livestock, and fisheries.

Progress in ICT applications in Bangladesh

There are about 85000 villages in the country. Each village should have an ICT centre to effectively fulfill the information need of the rural people.

Grameen Phone has established 560 CICs (Community Information Centres) to promote information on agriculture, medical services, educational institutes, visa processing and so on. Bangladesh Telecentre Network (BTN) is providing necessary support to set up telecentre. 700 telecentres have been set up by 2007 and they are working to achieve the target of setting up 40,000 telecentres in Bangladesh by 2011. Existing small phone, fax or other business entities can be turned into telecentres as well. UNDP is extending technical support to BTN.
Amader Gram, under a pilot scheme supported by the Ministry of Science and ICT, Government of Bangladesh (July 2004 - June 2006), is building knowledge society in twenty villages of Bagerhat and Khulna Districts. This project is planning to establish 100 ICT Based Community Learning Centers at the village level in Bangladesh.

Presently, rural women in Bangladesh are getting advanced medical counselling from the specialists in the US. The service has been launched in detecting breast cancer in Bagerhat district. The International Breast Cancer Research Foundation (IBCRF) of Ohio State University, USA is providing the service through Internet. There are now 16 such centres at different places and the number will go up to 100 by 2010. The Commonwealth Educational Media Centre for Asia (CEMCA) and Bangladesh Open University (BOU) are planning to introduce community radio in Bangladesh. Community radio is now playing a very important role in the development of coastal areas. It is possible to run educational programmes through community radio.

**Planning the Integrated ICT Centre**

The rural ICT centre is to be planned to provide all sorts of information required for overall economic and social development of the community members and to provide support and assistance in sustainable agricultural development, achieving food security, developing rural agro-enterprises and improvement of health and education.

The digital ICT, using a desktop/laptop computer and an EDGE modem at the cost of 500 US$, seems to be a cost-effective simple technology for internet connectivity. If cable TV and radio, the most popular and conventional mass media, are added, the integrated system (Fig. 1) will be a very much effective means for acquisition, processing and dissemination of information. Cable TV costs about 8,000 US$.

The information resource centre must have buildings, necessary equipment, adequate fund to run the centre, appropriately selected staff and strong management and advisory committee.

**The Aims and Objectives of the Integrated ICT Centre**

The aims and objectives of the ICT centre should be as follows:

1. to serve as an information exchange centre and a repository of all sorts of information needed by the rural people;
2. to provide information on all aspects of community life;
3. to help people make use of information;
4. to help community members acquire skills, knowledge and confidence to participate more willingly in community affairs;
5. to assist communities to improve their economic conditions;
6. coordinating and organizing activities with extension and other community workers, such as workshops, discussion groups, and practical demonstrations;
7. organizing activities in which community members can share ideas, information and concerns with GO and NGO agency workers;
8. providing a meeting and activity space for community use;

**Services of the Integrated ICT Centre**

Different types of digital services including internet browsing, basic computer education, broadband internet connection, digital photo service, photocopying, scanning and some other services will be provided. The centre will provide all support enabling the students and
teachers to use new information technologies, to gain greater exposure to resources and educational materials available on the internet. Training will be provided on topics of community interests. The rural ICT centre should be precisely equipped and financed to provide the following services:

**Information and Library services**

The Centre will collect information in printed forms from different sources such as research institutes, universities, public offices, NGOs, successful farmers, expert professionals, publications and reports, newspapers; from websites through internet; and from TV and radio programmes. The collected information will be sorted, refined and prepared in appropriate forms (printed matter, audio cassettes and video CDs). The information will be preserved in the library to deliver/disseminate information as required or demanded by the community people. The library will have all types of books, newspapers and printed documents, audio cassettes, audio CDs and video CDs, which are beneficial for all community members. The students will get text and reference books in the library. The members can borrow the books.

**Internet and e-mail service**

The centre will search for and download desired information from internet for preservation in CDs and delivery to the users.
Also the interested persons will be allowed to use the internet for browsing and e-mail at affordable prices. Teachers and students will have access to internet browsing to enhance their knowledge; educated youths will search for jobs; business entrepreneurs will have access to information about prices, markets and credit facilities as well as to gain new business skills such as recordkeeping and developing products and services, product design and quality standards.

The villagers will have access to a wide variety of government information and services (e-governance) reducing the time and money they would otherwise spend to get to and through public offices located at distant places. The centre can also provide internet connectivity in three categories -- for business people, for neighbourhood and for the SMEs.

**Cell phone service**

The cell phone can be used to get information from organizations, service providers and professionals for delivery to the user. Also the individuals will be allowed to use cell phones.

**On-line help service**

The centre will have links with some expert professionals who are engaged in community development activities including agriculturist, physician, providers of legal aid, etc. The centre will use internet and cell phones to get advisory service from experts on various problems as demanded by the community members.

**Cable TV Service**

Only few numbers of rich households own TV sets. Majority of the community people do not have access to TV programmes. TV is the most effective media of dissemination of information for less educated and illiterate people.

The centre will have necessary TV sets and equipment for cable TV to receive the national and international TV channels. The centre will capture the important shows, that are beneficial to the community people and preserve it in CDs for future use when demanded and for the people who missed the TV programme. The centre will provide cable TV service to the subcentres and also to the interested individuals or groups.

The target area is to be conveniently divided into several subcentres to provide one TV set to each sub centre comprising 50-100 households. The centre will provide cable TV service to each sub centre. The time schedule of the TV programmes, which are beneficial for the community, will be supplied earlier by the centre.

Bangladesh Television (BTV) is the only TV channel owned by the government. There are ten privately owned Satellite TV Channels i.e. NTV, Channel I, ETV, RTV, Channel S, Boishakhi TV, Channel 1, Islamic TV, Bangla Vision and ATN Bangla. All of these TV channels show package programs on agriculture, health care and other development activities.

**Radio Listening Service**

The use of radio for mass communication has existed for some forty years. Radio is a relatively inexpensive technology that reaches rural people effectively in their own languages. Majority of the farmers do not have the radio sets (Bhuiyan, 1974; Haque, 1972). Small credit can be provided to own radio sets.
The centre will provide at least one radio set with extra speakers to each sub centre so that the people can listen to radio programmes. Farmers’ need for information can be transmitted through drama series, discussions on agricultural production techniques that encourage food security and save labour, etc.; health care information; weather forecasts and market information.

**Training service**

The centre will provide training on the use of computers and other information technologies on regular basis. The basic computer courses allow the students and professionals to become knowledgeable about how to operate computers, how to install basic software and how to troubleshoot some problems. Agricultural extension workers, health care and family planning workers can have training to serve the community people. Traders and professional may be given training on topics of their interests. The centre can be used as a suitable venue for seminar, workshop and training courses organized by other public and private organizations.

**Document printing and photocopy service**

The community members will get document printing and photocopy services at reasonable cost.

**Digital Photography and Printing Service**

The centre is to be equipped with digital camera and digital movie camera to provide photography and printing services. The people will have the benefit of taking photographs of special occasions and festivals. They would not have to spend time and money to travel long distances for such kind of service.

**Distance Education and Learning**

Distance education and learning programmes on different subjects are being introduced by the public and private institutions. Many households of the village community cannot afford educational and residential expenses of their children by sending them to reputed institutions located at distant places. They can avail the centre’s facilities for distance education.

**Funding and Management**

Initially a substantial amount of fund is needed for housing and equipment. Fund is also required to run the centre with adequate number of trained personnel for a couple of years. There should be strong management committee to manage the centre and appropriate measures have to be taken to make the centre self-sustainable at the end of the project period. National and International donor agencies can be pursued for initial funding.

**Conclusion**

Human activities are based on information as because it is essential for decision making. Vast majority of the rural population are striving for economic emancipation. But there is none to pay attention to them. Their rights and privileges are always undermined. Food security is now a global concern. It is high time to give the farmers due support and assistance on all
aspects of life. They should have access to required information and support services to ensure increased agricultural production. ICT is the most appropriate tool for dissemination of information and village level ICT centre can play vital role in providing information to every individual.

References


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