Telesupport Experiment for Agricultural Information Management in West Bengal, India

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Abstract

The article describes the experimentation of Change Initiatives, an Indian NGO of sub-regional scope, with the application of ICT in agricultural information management under the EU-sponsored TeleSupport Project at Nadia district of West Bengal, India. During the project period an innovative mechanism of information management was experimented to facilitate two-way interaction between expert and client system with the involvement of local community. To sustain the two-way communication system two mobile and one fixed telecentre were established in the project area. The web resource created for sustaining the project hosted a large number of good practices, inspired numerous interactions among the stakeholders and facilitated diffusion of several agro-technologies. Large number of organizations and experts also joined the network. Within the project period, a considerable number of villagers including rural women and youth could be reached periodically with relevant agricultural information. Information related to crop management, livestock management, marketing etc. were professionally provided to the villagers. In spite of the initial success of the experimentation in terms of people's participation and magnitude of information created and exchanged, the project could not achieve sustainability in the long run. Lack of e-readiness, lack of appropriate resource persons among the stakeholders, absence of any explicit incentive system within the organizational context, constraints of human resources and fund caused failure of the project. Despite of its failure it has been successful in empowering people, especially the Muslim women of the area. The information management system tried during the project may be tried in many rural communities of third world countries with necessary modifications.

Keywords: information and communication technology (ICT), agricultural information management, telecentres, TeleSupport project, India

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Introduction

For the last two decades development researchers have shown serious interest in information and communication technologies (ICTs) in the context of development (Thioune, 2003). During the early years it was anticipated that ICTs will become crucially important for sustainable development in developing countries (Credé and Mansell, 1998) and it has shown its potential to assist in achieving social outcomes like increased availability of healthcare and education, better civic dialogue and citizen participation in social development processes (Davison et al., 2000; Harris, 2001; Qureshi and Trumbly-Lamsam, 2008). For the past twenty five years, most developed countries have witnessed significant changes that can be traced to ICTs and these changes may be observed in different aspects of life – economics, education, communications, leisure and travel (Thioune, 2003). ICTs are also considered as central in the effort to alleviate poverty (Kenny, 2001), ensure food security (Pigato, 2001) and empowerment of rural mass (Arunachalam, 2002) but not in the way when providing sufficient nutrition or adequate shelter is considered as strategy for poverty alleviation (Kenny, Navas–Sabater and Qiang, 2001).

Although the positive role that ICTs can play in the development process is well accepted, it is difficult to demonstrate the links between development and the use of ICTs by rigorous empirical studies. Digital technologies are more like catalysts that facilitate these changes rather than being an end in itself (Conroy, 2006). Like any other technology, it is the social context in which they have been introduced and implemented that determines their uses and impacts. The digital revolution is relevant only if it takes into consideration the daily realities and aspirations of individuals (Uimonen, 1997). Unfortunately, the impact of ICT-based projects has generally fallen well below the optimistic expectations by its protagonists. Particularly, the non-sustainability of many telecentre initiatives reminds the failure of agricultural projects of the past (Beardon, 2005). In the words of Beardon, these were the - “stories abound of government or NGO sponsored telecentres lying empty, equipment abandoned or stolen.”

One type of modern ICT intervention is rural telecentre, which has been widely experimented in third world countries. It is also considered crucial input for rural development (Chapman, 2002; Proenja, 2001). A telecentre is a physical space that provides public access to ICTs for educational, personal, social and economic development (Gomez, Hunt and Lamoureaux, 1999). It has also been narrowly conceptualized as a place that offers the public connectivity with computers and networks (Roman and Colle, 2002). Increasingly, there is evidence that telecentre projects are more likely to be successful if computer and internet-based services are only one of several components (Conroy, 2006). A string of literature is available on telecentre operations in Africa (Benjamin, 2000; Jensen, 2001; Mayanja, 2001; Mercer, 2006), Latin America (Hunt, 2001) and Asia (Harris, 2003; Meng, 2002) including India (Cecchini, 2003; Keniston, 2002; Madon, 2005). Available literature cover a wide array of topics including – telecentre designing (Morelli, 2003), content creation (Roman and Cole, 2003), telecentre analysis (Bailur, 2007) and evaluation (Hudson, 2001). Telecentre sustainability has also emerged as an issue of concern in the development discourse (Best and Kumar, 2008; Harris, Kumar and Balaji, 2003; Whyte, 2000) and more work is required to develop systematic understanding of the potential and limitations of telecentres as a mechanism for social and economic development (Colle and Roman, 2002; Fuchs, 1997; McConnell, 2001).

Issues related to sustainability have been examined in three main fronts – financial (or economic), political and social (Bailur, 2007). Although the primary focus has been on financial sustainability, social and political sustainability are also important issues (Colle, 2005; Harris, Kumar and Balaji, 2003; Whyte, 2000). Noticeably, studies tend to focus more on organizational issues than social issues related to telecentres (Kumar and Best, 2006; Ellen, 2003).

Information and knowledge play a central role in rural agricultural development. FAO (2000) views that information and knowledge play a key role in ensuring food security and sustainable development. World Bank (2005) also takes the position that information and communication technologies are a key input for economic development and growth.

Agricultural extension, in the current scenario of a rapidly changing world, has been recognised as an essential mechanism for delivering knowledge (information) and advice as an input for modern farming (Jones, 1997) and the role of ICT in actualizing so has drawn interest of practitioners (Astroth, 1990; Richardson, 2003). The application of ICT in the field of agriculture has been reported from different parts of the globe (Dodds, 1999; Kalusopa, 2005; Agwu, Uche-Mba and Akinnagbe, 2008; Arokoyo, 2003). Reports from India are not also difficult to find (Kenny, 2001; Kumar, 2004; Meera, Jhamtani and Rao, 2004; Mukherjee, 2008). But, limited reports are available where telecentre operations have concentrated on agricultural information management (Harris, Kumar and Balaji, 2003; Thirumavalavan and Garforth, 2009).

India have a large proportion of the poorest people in the world. At the same time, it has a rapidly growing economy and major commercial and manufacturing capability, including extensive expertise in modern ICTs. India's rural infrastructure is also improving rapidly in most areas. Therefore, India is now better placed to exploit the potential of modern ICTs than most less developed countries (Conroy, 2006). Agriculture is the mainstay of livelihoods for almost 60% of the population and India's extension system faces a huge task to reach this large client system effectively. ICTs can be of tremendous help for the efficient functioning of the multi-stakeholder propelled agricultural development. Hence, telecentre experimentation with agricultural information management is of paramount interest for the agricultural development in the third world.

Background of the TeleSupport Project

Significant amount of information relevant to poverty reduction and sustainable rural development has been developed over time by local communities, and by research, extension and development organizations. Intermediary organizations in India are often found to work with functional groups in local communities to promote environmentally sound production practices and to ensure the equal participation of women and marginalized groups in the development process. However, this information is scattered in NGOs, CBOs, individuals, research organizations and universities and therefore not easily available for local communities. This is also not available in local languages and in understandable format to potential users (NRSP, 2006).

The TeleSupport project started off with the purpose of development and testing of a model for two-way communication between rural communities in selected regions in India and European and Indian knowledge centres and networks. This was meant to find solutions to local problems in agriculture and natural resources management. The specific objectives for the project were - setting up an institutional framework for implementation of the model including

utilisation of existing rural 'telecentres' for dissemination of information; and setting up a partner-controlled web-based information platform, a shared web-based system management and a knowledge base of good practices (ibid).

Project location

The project was implemented with the financial support of European Union in two states of India – Kerala and West Bengal (WB). Change Initiatives (CI), an NGO of WB, implemented the WB chapter of the TeleSupport Project. Two villages (Ghoragacha and Madandanga) of Chakdah Block of Nadia district, West Bengal were selected for the project. The district and the Block fall in the New Alluvial Zone (one of the six major agroclimatic zones of West Bengal) of the WB state and are considered under the irrigated agricultural production system by the State Department of Agriculture, West Bengal. The main occupation of the area is agriculture, and high value crops like vegetables and fruits are extensively cultivated there. Several agricultural research and development organizations are situated near the villages who work on agricultural research and extension, livestock research and extension, dairy development and fodder cultivation. That is why the site was selected during the piloting phase of the project to avail expert inputs with relative ease. A survey on information need, perception of villagers regarding ICTs and e-readiness was done during the first two months of the project to undertake appropriate activities and facilitate monitoring and evaluation (CI, 2006).

The model of information management in TeleSupport project

Telecenters with functional groups of local users were central in the learning process of the model (Figure 1). Functional groups could be women self-help groups (SHGs) or farmer groups. The information and communication flow in the TeleSupport project focused on Good Practices (GPs). These were defined as 'Technologies or methods that contribute to sustainable agriculture and NRM'. The GPs focused on different thematic areas like - Soil fertility, IPM, Post-harvest, and Livestock with cross-cutting issues like Gender in Development and Environment (Newman and Crul, 2006).

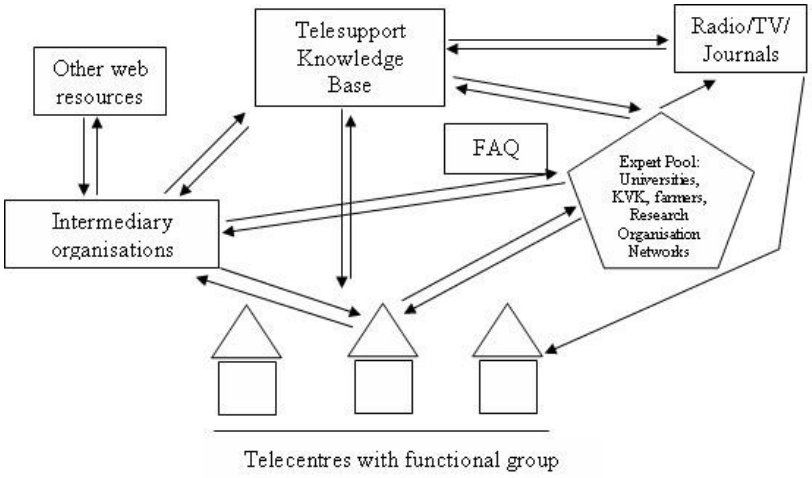

Figure 1. Information and two-way communication flow in the TeleSupport project (Newman and Crul, 2006)

'Expert pool' consisted of information providers and knowledge sources from various levels and background that generated knowledge and could be used to solve problems of local

communities. It included indigenous or local knowledge which was developed over centuries by local communities. Also the research system comprising of research organisations and universities could provide relevant information. Intermediary organisations were consisted of NGOs, Krishi Vigyan Kendras (KVK), farmer organizations and other CBOs that played a key role in supporting local communities. They were instrumental in identifying questions of farmer groups, scout for relevant information in the TeleSupport database/other web resources, contact experts and ensure that the information reaches local communities timely. Radio, TV and journals were considered important in disseminating the information about GPs and play clear role in upscaling information. Knowledge Base was built on the Infobridge (a Dutch partner of the project responsible for the information management in web) platform and played an important role as a systematic and long-term repository of information. Information in various languages and forms could be stored and retrieved (ibid).

Processes of web-based information storage and retrieval

A participatory action research methodology (McIntyre, 2007) was followed for the implementation of the project. The partners in the TeleSupport project identified the GPs and documented them. It included describing the approach/method of application of the practice with a concise summary, and all attributes that are needed to assess the relevance for other communities. Persons of the partner organizations trained in using the web-based platform would enter all the data, using the agreed TeleSupport data formats. Data were directly visible to all TeleSupport partners, including details of person and time of data entry. GPs were published, and thus available for public view, once their quality was assured. The main responsibility for quality checking rested with the Organisational Data Managers (ODMs). IBF played a limited overall supportive role in ensuring data quality. Once the data were visible online, the data were checked and feedback was given. The TeleSupport platform had a feedback mechanism in the form of a forum that allowed users to provide feedback and comment on the GPs. Questions could be posted to intermediary organizations like CI, experts of the networks or originators of the GPs as part of the Communication Model (Newman and Crul, 2006).

Functional groups in local communities were expected to be able to input, search and review on-line GPs that were relevant to local problems. The intermediary organizations ensured that internet connections were available in the Telecenters and that the Functional group can receive initial training in using the web-based platform. Indirect users of the project were extension agencies, agricultural universities, KVKs, Media, radio/TV, commodity dealers etc. These users differed in the way they benefited from the shared aggregated information pool. For the extension agencies and KVK, the information could be used directly in their work. For the media, TeleSupport offered a rich resource that could provide the building blocks for articles and programmes (ibid).

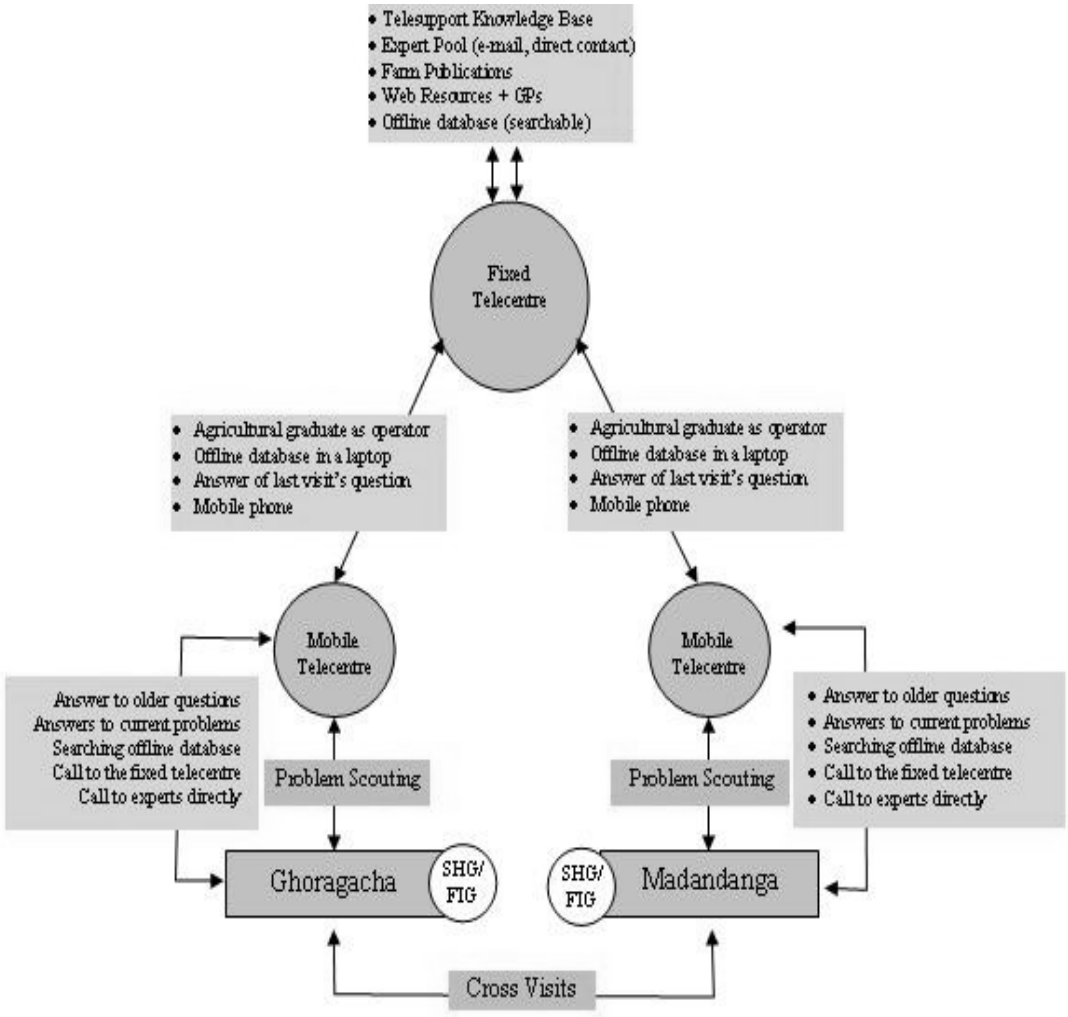

Figure 2. Information Management by the Intermediary Agency (Change Initiatives)

Model developed by the intermediary agency

The model of information management developed by CI is shown in Figure 2. Change Initiatives (CI) established two 'mobile' and one 'fixed' telecentres which were central to the management of information. The fixed telecentre remained open for seven hours a day (10.00 am to 5.00 pm) and six days a week. The telecentre operator was an agricultural graduate who was also responsible for operating the mobile telecentres in project villages. The mobile telecentre consisted of the telecentre operator and a laptop having searchable database of agricultural information in local language. The mobile telecentre used to reach the project villages twice a week on alternate days. The telecentre operator used to visit the agricultural field, talked to the farmers and farm women, visited villagers' home for scouting the existing problems of farming and provided technical assistance to the farmers. The operator posted the answers to the questions asked by the farmers two days ago on a board placed at a strategic place within the village so that maximum number of villagers could have a look at it. Then he sat with the SHG members of the village and educated them on technical matters related to farming. He used to answer to their existing queries and suggest solutions to the unanswered questions raised by the SHG members during the last meeting held 48 hours ago. The operator also searched the laptop

containing a searchable agricultural database in local language. This database was developed by CI with the help of Greenstone Digital Library software adapted for the local language by a researcher of information science at the Burdwan University, West Bengal. The mobile telecentre operator might also call the operator staying at the fixed telecentre where internet facility was available. Another option was to call the experts directly who had given consent to call them in emergency situations. The unanswered questions were then posted to the TeleSupport expert pool. Searching the web resources and project database was another option. In emergency, the project staff used to visit the nearby Agricultural University or KVK to maintain the commitment of delivering answer to the community within 48 hours. For frequently asked questions or for posted questions of other network members, the project staff prepared GP and uploaded it to the project database.

Evaluation of the TeleSupport West Bengal Chapter

CI worked in two villages that were close to the static telecentre; this was visited 12 and 13 times respectively by the villagers within 4 months of piloting phase. CI elicited technical questions from villagers and briefed them on the answers to some of those questions. Where the number of visitors to the static telecentre was negligible, during the mobile telecentre visits to the villages, more than 80 questions related to crop and animal husbandry was received, among which 42 questions were considered to be distinct in nature. The majority of clients were men (male – 34, female – 8). Crop protection, followed by livestock management, was the most important themes of the project in terms of the number of queries received. Questions related to livestock management were mostly on ruminants and poultry (Cattle–2, Goats–4, Chickens–2, Ducks–5). In most cases, queries were referred to other sources of information for answer; and the time taken to respond to such questions was typically 2 days. In 45 occasions, a technical expert was consulted for answers. Some questions, however, could not been answered due to unavailability of suitable expert during university visit. Sometimes, the problem was considered as new by the experts and refused to offer recommendation due lack of researched know how. Information addressing the queries was supplied to clients in written form, either as printed material (11) or hand-written (36). In addition, 3 video clips were prepared on important best practices and shown to farmers in a laptop during mobile telecentre visits. New technologies for e.g., 'Azolla cultivation', and 'Perianth mite control of coconut through root feeding' were introduced during the project tenure. During the project termination the TeleSupport website was receiving some 600 users per month. More than 30 organisations became members of TeleSupport and documented Good Practices. The database contained 101 GP and 78 people had registered to use discussion boards; 375 'posts' had been made on 232 topics. Eighty 'experts' were available to answer the villagers' questions. As a repository for GP and related information, a shared database of InfoBridge was used that contained more than 6,000 information items including 150 projects and some 1,000 documents (Conroy, 2007).

Email and internet facilities were available and readily accessible at most agricultural research organisations and universities. However, some staff members did not use these facilities on a regular basis and others had limited experience with the use of computers. E-readiness of staff in intermediary organisations was also found to be widely varying. A thematic coordinator might act as a moderator to facilitate the discussion on a Good Practice description once it had been placed on the Discussion Forum. However, it was an open question as to whether 'experts' will be willing to act as thematic coordinators in the future without financial support. It became apparent very quickly that farmers were interested in information on a wider range of themes

than could be provided in the pilot phase of TeleSupport. The use of a mobile telecentre was an interesting and innovative way of reaching out to more people, especially to conservative Muslim women; but, it demanded excess human resource. Individuals participated in TeleSupport with enthusiasm even when the organisations who they worked for (particularly the formal research system) were reluctant to make a formal commitment to the project (ibid).

Conclusion

An account of the telecentre operations during the piloting may be appreciated against ten points put forward by Conroy (2006) in the Working Paper of TeleSupport project. The telecentre was operated as a not-for-profit mode which is not natural in Indian context (ibid). The services offered during the piloting were solely on agriculture and allied sectors. This fall short of the information need of the communities. The e-readiness was considered to be medium for both the project location and the state of West Bengal. Electricity was moderately regular and broadband facility was expanding in the nearby towns during the project period. Frieden (2004) posts broadband connectivity as crucial one for successful telecentre operations. Community participation was not spontaneous and consistent. This might be due to the reason that the farmers of the project villages were made habituated to incentivised participation by local stakeholders of agricultural development, who were mostly output oriented to demonstrate the success of their institutions. Moreover, they needed more diverse informational input for livelihood promotion. That is why, in spite of high relevance of information farmers' participation fall below expectation. Although, some of the farmers found the advice of local experts, who had been researching/working there for several years, precisely appropriate for their farming situation. Women Self Help Groups (SHG), however, participated actively in the project as SHG mobilization was integral to CI's development strategy. Community access to the service was increased to a great extent by the innovation of 'mobile telecentre' and the searchable offline database in local language contributed towards its operational sustainability. But, this innovation asked for additional human and financial resources and it was difficult to support for a not-for-profit telecentre. Hence, the pilot phase achieved social sustainability with a gender sensitive approach, but failed to achieve financial sustainability. Lack of e-readiness, lack of appropriate resource persons among the stakeholders, absence of any incentive system within the organizational context were some other constraints hindering operation efficiency of the communication system. Cole (2005) also observes the necessity of capacity building of the universities.

With the termination of the pilot project, CI found it hard to continue with the Telecentre operations sustainable. Capacity building of local youth continued, which also created basis for telecentre sustainability in future (human resource). The functional groups are still active but the availability of qualified operators and committed local expert pool is ruefully missing. The experiment empowered the villagers, especially the Muslim SHG members, who previously kept themselves confined within the boundary of household chore. This issue of empowerment is considered to be important by some authors (Arunachalam, 2002). The lesson that was learnt and the communication model that was tested in project villages may prove helpful for grassroot level ICT intervention by intermediary agencies of sub-regional scope. This is true for both CI and any intermediary agency working with ICT4D theme. Even in the time of Government of India's much touted vision of establishing Common Service Centres in one hundred thousand villages, this model doesn't loose its relevance as far as the process component of ICT for development is concerned.

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