

e-Initiative for Agricultural Extension: Browsing for Logout?

R. Saravanan

School of Social Sciences
College of Post Graduate Studies
Central Agricultural University (CAU)
saravananraj@hotmail.com, saravanancau@gmail.com

ABSTRACT

This case study deals about an e-extension initiative for the poor tribal farmers of the most backward north-east region of India, piloted jointly by the renowned public Information Technology (IT) research organisation and agricultural university in India. Project was initiated with the expectation of “compatible and complementing partners” will create synergy to move forward, but experiences showed that it was “marrying for divorce”. Both institutes were loaded with different institutional, cultural and environmental settings. For three years, project team successfully integrated modern ICTs with traditional extension to disseminate the farm information. Project demonstrated potential of ICTs in facilitating adoption of new farm innovations for the livelihood improvement of small and marginal farmers along with positive impact on time and cost to avail and deliver the services. However, lack of need based content, less infrastructure, limited supporting services-forward and backward linkages hindered to realise full potential of the e-Initiative. There are number of institutional barriers like; lack of flexibility and limited innovation facilitation skills and also other few institutional stakeholders intermittently halted the progress in the name of rules, especially in financial matters than actual research. Pre-digital era born Administrative leaders, those who are all along worked with “type-writing machines” are “sceptical” to use new ICT tools for farm advisory services and they regularly discouraged the project team. Project heavily suffered with the “project tourism” attitude, because this project was implemented in the one of the remotest corner of the country and dubbed as “hidden paradise” and collaborators had a reason and logistics to visit the project area. Above factors enormously hindered the ICT pilot’s scaling-up and sustainability. This case study intent to discuss the project stakeholders experience in an undefensive way- what went wrong and why? what lessons it gives for the ICT practitioners in developing countries? and how to fix it.

Keywords: Extension, Farmers, India, e-Agriculture, Barriers

1 INTRODUCTION

India’s North-East is endowed with rich natural resources for development. The economic upliftment of the entire region depends, to a large extent, on the progress of agriculture and allied sectors. The ‘non-income poverty’ in terms of inadequate information on advanced farm technologies, market intelligence and rural development schemes produces the income poverty in the region (40 per cent of the population lives below the poverty line (MoRD-GoI, 2005). The limited technical manpower, lack of transport and communication facilities, inadequate financial support to the technology transfer and less infrastructure facility creates huge technological gap among rural tribal farming community. Further, difficult terrain, mountainous periphery and frequent natural disasters hinder the development of the region. Due to non-availability of improved technological information to the tribal farmers, agriculture exhibits low and unstable productivity (Saravanan, 2012), which makes agriculture become less remunerative and also creates food insecurity problem. Considering the disappointing agricultural development scenario, it is expected that application of Information and Communication Technologies (ICTs) in agricultural information provision to the tribal farming community, will change the socio-economic condition in the villages. Keeping the above facts in mind, an e-initiative was piloted (during 1st May 2008 – 31st May 2011)

in selected villages in East Siang District of Arunachal Pradesh state of North-East India by creating ICT infrastructure.

Major objectives of the project

1. To create ICT infrastructure in the remote tribal villages of Arunachal Pradesh to provide e-awareness and e-literacy to the tribal farming community.
2. To explore the use of e-Learning mechanisms to reach out the community information needs
3. To explore the appropriate rural ICT application aspects and services specific to NE region.

Project location

The *Adi* tribe is one of the major tribe living in the eastern Himalayan hills and they are found in the sub-tropical regions within the districts of East Siang, Upper Siang, West Siang and Dibang Valley districts of the Arunachal Pradesh state of north-east India. The literal meaning of *Adi* is "hill" or "mountain top". Project was implemented in the East Siang District of Arunachal Pradesh state of North-East India, predominantly inhabited by the 'Adi' tribal community. Agriculture is the main occupation in this district. The total population of this district is 99,019. The community speak 'Adi' tribal dialect, which has no scripts. People can understand moderate Hindi and English. The selected 10 e-villages are representing 137 villages surrounding them. Siang river is the main water source, apart from number of small rivulets from hills. The average annual rainfall of the district was 440 cm. Generally, rocky sandy loam soil with the p^H ranges from 5 to 6.5 and sub-tropical climate condition favours cultivation of a wide range of crops. The major cultivated crops are rice, mustard, maize, mandarin orange, pineapple and vegetables in the foot hill and mid hill areas. The prevalence of shifting cultivation ("Slash and burning" or "Jhum" agriculture system) also called as Jhum cultivation, which involves slashing and burning of the vegetation on hill slopes and using the land for cultivation for two or three years. Then farmers move to new area for doing the same practice. The *Adi* tribe extensively practice irrigated rice cultivation and have a considerable agricultural economy. Traditional farming systems, ecological pest and diseases control measures, bio-diversity conservation and traditional homestead agro-forestry systems are unique to the Adi tribal farmers (Saravanan, 2010).

Project working mechanism

The e-Village project implemented in the selected 10 remote tribal villages in East Siang district of Arunachal Pradesh State, North- East India. The selected villages are located at the center of rural area, so that people from surrounding villages will have an access to the IT infrastructure. Each e-village centre is equipped with a desktop computer, television with DTH connection and internet (EVDO) connection. Apart from these, a mini library also established with the technical publications in agriculture and allied sectors. One project facilitator was selected from the same or near by village to act as a facilitator and trainer in the village IT centre. The project facilitator and group of selected village council members are responsible for conducting regular e-awareness and e-literacy programmes. Regular computer training classes were conducted to the children, village youth and others. The project research fellows and facilitators are experimenting local need based IT applications in the area of agriculture, health, education, governance and other areas (Saravanan *et al.*, 2011).

2 PROJECT ACHIEVEMENTS

The following are the brief project achievements;

1. *ICT infrastructure development*: Established 10 e-Village centres (Berung, Sille, Ngorlung, Detak, Mikong, Mirem, Miklung, Sikabamin, Yagrung and Ayeng) in East Siang District of Arunachal Pradesh, predominantly under Adi tribal community. Each e-village centre is

equipped with a desktop computer, television with DTH connection and internet (EVDO) connection. Apart from these a mini library having technical publications in Agriculture and allied sector. The centre was managed by project facilitators recruited from local community, who knows Adi language. They trained on basic ICT concepts and supported by scientists and research fellows from the College of Horticulture and Forestry of the Central Agricultural University. The space for setting up the e-village centres, furniture and electricity were contributed by village community

2. *Dissemination of agro-techniques and training to farmers:* e-Village project team organised 54 training programmes for farmers (includes 12 programmes by Krishi Vignan Kendra (Farm Science Centres) of the ICAR & Rubber Board). About 1640 farmers & women got trained on various practices related to agricultural and allied sectors (Animal Husbandry & Fisheries).
3. *Introduction of newer technologies & entrepreneurship skills to farmers:* System of Rice Intensification (SRI), Composite fish culture, Poultry rearing (Giriraja & GiriRani introduced), encouraging Rubber Plantation in Jhum lands, Rubber nursery based entrepreneurship were documented as a success stories. The following are the types of content provided to farmers and other community members through e-village centres.
4. *e-Awareness to the rural tribal community:* Organised seven community level awareness programmes to provide e-awareness to farmers, women and children. Also, organised district level focused group meetings with farmers, agricultural extension personnel and agricultural scientists on the potential of “ICT for Agriculture”.
5. *e-Literacy to tribal children & women:* More than 800 school students, village youth and women got trained on basic computer applications through e-Village centres.

Project demonstrated potential of ICTs in facilitating adoption of new farm innovations for the livelihood improvement of small and marginal farmers along with positive impact on time and cost to avail and deliver the services (Saravanan *et al.*, 2011). However, lack of need based content, less infrastructure, limited supporting services-forward and backward linkages posed threat to realise full potential of the e-Initiative. There are number of technological, institutional and community barriers (APAARI, 2012) which hindered the progress of the project.

3 PROJECT LESSONS

3a. TECHNOLOGICAL BARRIERS

1. *Farmers had limited access to ICTs:* Due to inadequate ICT infrastructure (e-Village centre had only one computer to serve large number of farmers and others), most farmers unable to access and use the ICTs to avail farm information.
2. *Limited ICT infrastructure:* Frequent power outages, poor internet connectivity and very less number of ICTs were made project unable to serve large number of farmers.
3. *Lack of media and traditional ICTs:* Lack of convergence of media (electronic and print) and information from agriculture and other areas.
4. *Limited content to provide through ICTs:* There was a limitation in the validated and location specific content, hence, unable to update information through ICTs.
5. *Inadequate technical human resource:* There was an inadequate technical manpower to handle the project centre at the village.

3b. INSTITUTIONAL BARRIERS- FROM IMPLEMENTING AGENCY

1. *Lack of need based content from the institute:* Absence of location specific and demand driven content slowed down the project progress. Further, project had few staff members and had limited capacity to create content. Further, the available content need to be categorized and further processed with appropriate treatment to suit the different project beneficiaries. Project faced difficulty in serving farmer specific content. Blanket recommendations were not appreciated by the farmers.

2. *Lack of institutional ownership*: Time bound nature of pilot project and absence of long term vision hindered the institutional ownership.
3. *Limited supporting services-forward and backward linkages*: Project unable to assure support services as per the agricultural information and knowledge disseminated through ICTs. Information and knowledge on farm practices along with other forward (farm machinery, manure, seeds) and backward linkages (post harvest technology and market) were essential in adopting farm practices.
4. *Lack of flexibility and limited innovation*: Project objectives were rigid and offered limited scope to innovate depending upon the local situation.
5. *Difficulty in establishing & sustaining institutional partnerships*: Project staff faced difficulty in integration of farm research and extension actors. Further, there was a limited convergence of ICT initiative and agricultural knowledge providers.
6. *Lack of awareness among (or support from) local administrators*: Using ICTs for farm advisory services were new to many administrators and hence, project received limited support from the administrators.
7. *“Sceptical” to use new ICT tools for farm advisory services*: Pre-digital era born Administrative leaders, those who are all along worked with “type-writing machines” are “sceptical” to use new ICT tools for farm advisory services and they regularly discouraged the project team.
8. *Limited technical human resource*: Capacity of project staff to digitize, publish, access and comprehend and also to use digital resources are very limited which in-turn hindered the project progress.
9. *Limitation of institutionalizing ICTs and practicing ICM*: Culture of integrating and using ICTs for providing farm advisory services were very limited and there was limited practice of information and communication management in farm advisory services provision.
10. *Issue of project sustainability*: Project unable to address the system and financial sustainability of the ICT initiative.

3b. INSTITUTIONAL BARRIERS- FROM PROJECT PARTNER AGENCY

1. *Intermittently halted the progress in the name of rules*: Few institutional stakeholders intermittently halted the progress of the project in the name of rules, especially in financial matters than actual research.
2. *“Sceptical” with the project partners*: Project was implemented in the socio-economically most disadvantaged region of India. Project partner from developed region had sceptical attitude to provide project items (ICTs- computers, laptop, and LCD projector) and they provided low end computers and even some items never distributed to the project purpose (even though they were purchased for the project) .
3. *Limited research collaboration*: Project partner agency was unable to contribute as per the project proposal and they had limited research contribution and however, project budget was diverted to other projects and activities of their institute.
4. *“Project tourism” attitude*: Project heavily suffered with the “project tourism” attitude, because this project was implemented in the one of the remotest corner of the country and dubbed as “hidden paradise” and collaborators had a reason and logistics to visit the project area.

3c. COMMUNITY ISSUES

1. *Difficulty in community participation*: Project unable to achieve entire community participation, due to only educational nature of the project and also because of its inability to ensure forward and backward linkages.
2. *Project limitation*: Project had limited capacity to undertake capacity building programme to the community on use of ICT tools and information. Only few ICT awareness programmes were conducted.
3. *Mismatch between community needs and project objectives*: There was a mismatch between communities’ perceived needs and project objectives.

4. *Community showed limited interest due to temporary nature of the project:* Project was viewed as temporary and hence community had limited interest in the project.
5. *Lack of community interest in sharing responsibility:* Community members were unwilling to shoulder the recurring expenditure to run the project after the project period.

4 CONCLUSIONS

The e-Initiative was successful in establishing ICT infrastructure in the selected remote tribal villages, creating e-Awareness to the farming community, dissemination of the farm information and agro-techniques and also ICT based training to the tribal farmers and school going tribal children. However, lack of need based content, less infrastructure, limited supporting services, institutional barriers hindered to realise full potential of the e-Initiative. Hence, to realise the full potential of e-Initiatives for agricultural extension following are suggested:

1. Creating appropriate ICT infrastructure in the rural area
2. Facilitating ICT access to farmers
3. Convergence of media (electronic and print) for farm information dissemination.
4. Ensuring validated and location specific content
5. ICT capacity building among farm stakeholders
6. Creating sustainable institutional partnerships
7. Integrating local innovations
8. Developing pro-digital leadership
9. Institutionalising ICTs for agricultural extension
10. Ensuring community participation and creating community ownership
11. Choosing potential and trustworthy partners to implement the e-initiative

REFERENCES

- [1] APAARI, (2012), Proceedings of the Session on Openness in Agricultural Information and Knowledge Sharing, INSEE-2011-International Conference on Innovative Approaches for Agricultural Knowledge Management: Global Extension Experiences, jointly organised by the Global Forum on Agricultural Research (GFAR), Asia-Pacific Association of Agricultural Research Institutions (APAARI) and Indian Council of Agricultural Research (ICAR), New Delhi, India. <http://www.apaari.org/wp-content/uploads/downloads/2012/04/Openness-in-AIK-Sharing.pdf> (Accessed on 15th July, 2012).
- [2] MoRD-GoI. (2005), Rural development activities in North Eastern region, Ministry of Rural Development (MoRD) - Government of India (GoI), Information Bulletin, New Delhi.
- [3] Saravanan, R., (2010), Traditional Knowledge, Innovation Systems and Democracy for Sustainable Agriculture: A case Study on Adi Tribes of Eastern Himalayas of North-East India. Proceedings of the International Symposium on Innovation and Sustainable Development in Agriculture and Food (ISDA), Montpellier.
- [4] Saravanan, R., Kathiresan, C., and Indradevi, T. (Eds) (2011), Information and Communication Technology for Agriculture and Rural Development. New India Publishing Agency, New Delhi.
- [5] Saravanan, R., (2012), e-Agriculture Prototype for Knowledge Facilitation among Tribal Farmers of North-East India: Innovations, Impact and Lessons. Journal of Agricultural Education and Extension (Accepted for publication).