



ICT for Promotion of Tribal Farmers and Food Security: An Anthropological Study in Koraput District of Odisha, India

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ABSTRACT

Since last few decades, the field of Information and Communication Technology (ICT) has advocated for an integrated rural/tribal development through its uses and applications in finding markets and price negotiation, obtaining and distributing information on assets, prices, consumption trend and inventions and expanding educational opportunities. In the tribal areas of India, several programmes like Satellite Instructional Television Experiment (SITE), ITES for governance, District Information System (DISNIC), NICNET and Computerised Rural Information System Project (CRISPs) are implemented for agricultural development. Based on these aspirations, the MS Swaminathan Research Foundation (MSSRF), a civil society organization started Village Knowledge Centres (VKCs), Village Resource Centres (VRCs) and Farm Field Schools in collaboration with Indian Space Research Organisation (ISRO) to empower the tribal farmers, especially women farmers in Koraput district of Odisha since 1992. The present paper is a critical anthropological evaluation study in the programme implemented villages to sort out two major objectives related to role of ICT in empowering tribal farmers and to achieve food security. Firstly, to evaluate the role of VKCs as centre of information and discussion relating to important government initiated programmes like NRHM, National Horticulture Mission and National Food Security Mission. To evaluate the effectiveness of audio-video conference programmes provided to the VRCs for communication. Secondly, to evaluate the role of knowledge empowerment programmes; lab-to-land, land-to-lab, land-to-land and lab-to-lab for skill development in agriculture. Finally, this paper argues for an ICT approach of development model for the integrated development and empowerment of the tribal women in India.

Key Words: Information Technology, Tribals, Sustainable Development, Gene Bank

Introduction

Today is the age of information, when it is often held axiomatic that information flow is involuntary and it would reach the public automatically. The emergence of new Information and Communication Technology (ICT), particularly digital ICTs store

the information as ones and zeros and transmit the data through telecommunication networks. Examples of digital ICTs include among others, telephones, wireless cellular phones, communication satellites, computers and the Internet. These have been the harbinger of socio-economic development in developed as well as developing countries, particularly after the process of globalization (Aralu, 2015; Amardeep and Ansaari, 2014).

Since the mid-1970s, the United States and European countries have become information societies i.e., countries in which production, processing and distribution of information software and hardware are the main activities. Later on it was introduced in the third world countries; the Satellite Instructional Television Experiment (SITE) in India, the Palapa Experiment in Indonesia, the experiments with satellite – based rural telephony in Peru are some of the examples of ICTs in the 1970s and 1980s. In India, ICT has been in use at the district level since 1985 and now many states have successfully used it for governance in the rural areas (Bhatnagar, 2004; Bagga et.al. 2005).

The applications of ICT have tremendous impact on the rural and tribal populations in terms of three areas- decision support to public administration, improving services to citizens and empowering citizens to access information and knowledge. Specifically it has been used in- (a) finding markets for farm produce, fishery catches and handicraft products; negotiating prices and arranging for transformation, (b) obtaining and distributing information rapidly on assets, prices, consumption trends and inventory, (c) carrying out financial transaction such as making money deposits, paying bills and obtaining cash, (d) facilitating rural and eco-tourism, (e) expanding educational opportunities such as distance learning and promoting telemedicine for dissemination of medical information, diagnosis and training of staff in remote health centres.



Based on these aspirations, the MS Swaminathan Research Foundation (MSSRF), a civil society organization started Village Knowledge Centres (VKCs), Village Resource Centres (VRCs) and Farm Field Schools in collaboration with Indian Space Research Organisation (ISRO) to empower the tribal farmers, especially women farmers to secure food security in Koraput district of Odisha since 1992.

Aims and Objectives

To sort out three major objectives related to role of ICT in empowering tribal women in the studied villages. These are to evaluate:

1. The role of VKCs as centre of information and discussion relating to important government initiated programmes like NRHM, National Horticulture Mission and National Food Security Mission and particularly agricultural activities in the studied tribal villages.
2. The effectiveness of audio-video conference programmes provided to the VRCs for communication.
3. The role of knowledge empowerment programmes; lab-to-land, land-to-lab, land-to-land and lab-to-lab for skill development.

Finally, this paper argues for an ICT approach of development model for the integrated development and empowerment of the tribal women in India.

Methodology

The present paper is a critical empirical/anthropological evaluation study in the programme implemented four villages; Kaudiaguda, Asna, Nuaguda and Tolla of Koraput district in Odisha. However, other nearby villages was studied to see the impact of MSSRF initiated IT programmes on skill development among the tribals of this belt. This study is based on gender perspective theories to unearth tribal women perception for ICT, its role in agriculture and their socio-economic empowerment. The informants for this study include all the households in six villages, clan leaders, women and MSSRF representatives. The source of data is primary as well as secondary. The techniques used were observation, interview, case study and Focus Group Discussion.

Area and People

Koraput district in Odisha has the distinction of being the first site in India to be declared as Globally Important Agricultural Heritage system

(the Prime Minister declared in the Science Congress at Bhubaneswar on 3rd January 2012). The district is inhabited by 52 tribal communities (Gond, Bhatada, Paroja, Bhumia, Bondas, etc.). In this belt, the MSSRF has initiated a bottom up approach for the management of bio-resources and to link them with enhancement of quality of life of the people. The basic philosophy behind it is that various developmental initiatives taken up by the government agencies do not always address resources of direct relevance to the local community.

Results and Discussion

I. VKCs and VRCs as Centre of Information

The Village Knowledge Centres (VKCs) are established against the idea that information is passive and is mostly one way communication. The centres are information centres for interaction and discussion between scientists and rural/tribal families on important programmes like National Rural Health Mission (NRHM), National Horticulture Mission, National Food Security Mission and all other schemes of the government of India, the state governments and local NGOs.

Such convergence among different programmes at the field level is helping to generate synergy among them and thereby enhancing benefit to the tribal families in the studied villages. The content is location specific, dynamic and demand-driven and delivered in the local language. It is also gender sensitive, with emphasis on the specific needs of women such as health care services. Capacity building is carried out in the local language, and in such a manner that rural women and men are able to participate in the programmes after completing their daily chores. Software for a variety of topics of importance to tribal families is now available in different languages and connectivity has now become relatively easy. The accommodation for community VKCs have been provided by the community and are managed and operated by trained men and women of the community itself. They serve as volunteers and the management is done in rotation among a group of volunteers from the community. These VKCs are extremely popular among the youth and school children due to its fairness and huge information provided through computer. The Village resource Centres (VRCs) established in collaboration with the Indian Space Research Organisation (ISRO) since 2004 are having satellite connectivity and telecommunication facilities. The audio-video conference facilities of VRCs are proved to be highly effective for communication among farmers.



II. Knowledge Empowerment Programmes; Lab-to-Land, Land-to-Lab, Land-to-Land and Lab-To-Lab for Skill Development

The knowledge empowerment programmes involve lab-to-land, land-to-lab, land-to-land and lab-to lab for skill development among the tribal farmers. To summarise, since it is a farmer-to-farmer learning, it has been proved as a very powerful method of extension since farmers have faith in the advice provided by fellow farmers. In order to facilitate such sharing of experience and ideas, Farm Field Schools have been established with the support of Indian Overseas Bank in this area. The main objective of these schools is to impart practical training to farmers on crop management and to transfer new and innovative technologies to improve crop production. Each farm school is having both training and hostel facilities.

Further, ICT has been applied to provide training for farmers on organic farming, formulation of grain bank, gene bank, seed bank, pisci-culture for landless families and cultivation of medicinal plants along with agriculture for the farmers. All activities are meant to promote food security in this tribal belt. The major concerns are participatory research for livelihood security through participatory Plant Breeding and improvement, participatory research for livelihood security through livelihood options, integrating traditional knowledge with improvement options for enhanced livelihood security, social benefits from participatory improvement and gender issues, case histories that demonstrate enhanced livelihood security of the poor and capacity building, training institutions and farmers rights.

III. Participatory Plant Breeding And Knowledge Management

Participatory plant breeding is an effective pathway to develop strains of crop varieties adapted to local conditions and to maintain genetic diversity among the varieties cultivated. Wherever participatory methods of breeding and knowledge management have been effectively used, the result has been the development of varieties which are adapted to local agro-climatic condition, efficient in the use of the available water and nutrient resources, and amenable to agronomic practices like integrated nutrient supply and integrated pest management.

Participatory Plant Breeding (PPB) has evolved into a popular discipline providing a bridge between classical Mendelian breeding and modern molecular breeding. It is acknowledged that High Yielding Varieties (HYVs) developed in many

crops through years of sustained plant breeding research have been primarily responsible to elevate nations suffering from chronic food deficit to food self-sufficiency and surplus.

In the process, opportunities for conserving peoples' local varieties and ancient landraces can open up addressing the important area of biodiversity conservation. In such a process, the traditional knowledge of tribal women, particularly seed selection, could come to profitable use thus emphasizing the role of women in farming. Conservation, cultivation, consumption and economic gains through marketing excess production when enabled could lead to sustainable pathways of poverty reduction.

IV. Organic Farming

The villagers have learnt the use of animal manures, compost and human sewage in their agricultural fields. Also they grow green manure-plants are grown, then ploughed in and left to rot. These are for the use in their own fields. They are also developing vermi compost units for marketing. MSSRF gives training to the farmers. The units are income generators, allowing them to sell the fertilizer and the earthworms they rear. There is no or less use of artificial fertilizers or pesticides. Through this, the tribal farmers are able to produce good quality foods from their own agricultural fields and also get some cash to be used to buy other household requirements. They get training on land-levelling and bonding, water conservation and planning and on crop rotation (changing the crop grown each year), which help them keep a good soil for many years for sustainable agriculture.

V. Community Food Security System

Gene Bank

The concept of Evergreen Revolution involves enhancement of productivity in perpetuity without associated ecological and/ or social harm. To achieve such a revolution in farm productivity, there is need to mainstream sustainability parameters in research and development. In the area of plant breeding, this implies the conservation of genetic diversity and its use for breeding varieties which are adapted to the local agro-climatic and agro-economic conditions as well as culinary preference. Varietal homogeneity enhances genetic vulnerability to pests and diseases and hence genetic heterogeneity is vital for sustainable agriculture (Vision Document, MSSRF, 2012).



Grain Bank

Grain Banks are considered as one of the possibilities to address food security concern in tribal areas. Grain Banks are village level institutions, which ensure availability of food grain during lean period. In the tribal regions especially in Orissa, food insecurity is combined with ill-health and illiteracy.

Community grain bank is a decentralised form of grain management and distribution. The contribution comes from individual households. MSSRF has so far established 20 grain banks. Each grain bank is managed by a committee comprising of community members and MSSRF train on capacity building of the committee members so that they could independently manage the affairs of the bank. Capacity building programmes on record keeping are organised. Management committee decides about the utilization of excess grains. In some villages, the committee decides to sell the excess quantity and credit the sale proceeds to the village development fund. 10 to 20 percent of growth of grain stock in banks is through interest collection.

Objectives of Grain Bank

1. To ensure food security during the period of natural calamity or during the lean period when the tribals do not have purchasing power.
2. To allow the needy people to borrow food from the grain banks within the village till they are able to repay the grain back to the grain bank.
3. To help the tribal poor to break the moneylender's trap of debt and bondage.
4. To develop a system this could be managed by the community participation and become sustainable over a long period of time.
5. To control migration at the community level.

It was found that there are multidimensional advantages of grain bank. In the tribal households, most of their loan was during the months of March-June for cultivation purpose. Usually they borrow money to buy seeds for sapling. Now they have developed the grain banks at the village level, from where they can take away their share of grains. It has drastically reduced dependency on moneylenders/*sahukar*, this initiative has also created a sense of unity and integrity among the people and ensure food security and meets socio-economic needs. They say that it also meet their unforeseen contingencies in food front. The

villagers have been able to take their own decisions through local conversations (language) as it exists in their own village and managed by their own community people. Management is an important aspect in development activities and the villagers grasp the management process which encourages them to take other managerial works. They have been able to raise their voices against exploitation to secure socio-economic justice and human rights. It has also developed the sense of savings among the tribals.

Grain & Seed Banks help farmers cope with the lean periods when they have no food to eat and are forced to borrow from exploitative landlords. We are helping Village Development Committees store surplus grains and seeds and borrow from each other, rather than their landlords.

Hunger Fighter Scheme

Keeping in view the prevalence of high level of hunger and malnutrition among the mothers and children, MSSRF has initiated the Community Hunger Fighter Scheme (CHF) in the studied villages. In this scheme, the community hunger fighters would be chosen by the Gram Sabha or the village Council, so that they derive their authority from the people of that area. The village communities identify 5 persons in the age group 25-30 from each hamlet, consisting of both men and women for training as community hunger fighters. They are the representatives from all the communities in order to ensure social inclusiveness in access to nutrition support schemes. They develop rapport with different departments of the government, so as to access to the concerned officials.

It has in fact increased the participation or involvement of the community in addressing issues related to malnutrition. Now, even the mothers are being able to freely discuss on the issue of entitlement from the health department. They have learnt on the provisions of food in the ICDS, requirements and provisions of iron tablets and the nutritional things for the mother before and after child birth and many more. It has also increased the level of awareness on nutrition and health related issues among the community.

Conclusion

Recently, ICT has been much used in the rural agricultural sector and to help farmers in finding markets for farm produce, negotiating prices and arranging for transformation, obtaining and distributing information rapidly on assets, prices,



consumption trends and inventory, carrying out financial transaction such as making money deposits, paying bills and obtaining cash and many more. The civil societies like MSSRF has started Village Knowledge Centres (VKCs), Village Resource Centres (VRCs) and Farm Field Schools in collaboration with Indian Space Research Organisation (ISRO) to empower the tribal farmers, especially women farmers to secure food security in Koraput district of Odisha. The result shows that the initiatives to utilize ICT for the promotion of agriculture and food security involve at three levels- ecosystem, species and the genetics. ICT has been much used to promote Indigenous knowledge and Community Participation in agriculture and to secure food among the tribal communities. Formulation of VKCs, VRCs,

Hunger Fighter Schemes, Gene Banking, Grain Bank and Seed Bank help the tribal communities bridge the gap between their traditional knowledge and the modern scientific knowledge available in the market. Further, empowering the community participation through the utilization of Information Technology helps transmitting knowledge among the community. When we see the efforts of MSSRF for an agro-ecology or sustainable agriculture, it proves that the earlier agricultural practices among the tribal communities were in accordance to the natural environments and least anthropogenic interventions, by which there was a balance of societal and environmental requirements. This approach seems to be the better way to empower tribal farmers and food security

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