

# ODL Technology for Development of Livelihoods –

## Reflections on Case Studies of Rural India

- Dr. P. Vijayalakshmi Pandit  
Director, G. Ram Reddy Research Academy of  
Distance Education (GRADE),  
Dr. B.R. Ambedkar Open University,  
Hyderabad, A.P., India.  
p\_vijayalakshmpandit@yahoo.co.in

### **Abstract**

*Open Distance Learning (ODL), a flexible and learner centred education system has got the potential to create a learning environment suitable to the target learners utilising appropriate Information and Communication Technologies (ICTs). This malleable nature of ODL to any socio, economic and cultural context, made ODL a development input, that facilitate achieving any development goal. This is evident from number of case studies in India where ICT mediated ODL is utilised for knowledge creation and dissemination for empowerment of farmers, artisans, women and rural poor for generating livelihoods. India being an agrarian society where about 70% of people live in rural areas, more than 57% depend on agriculture and allied activities and about 45% of people live under poverty line; imparting education, skill development, awareness building among these people through formal education system is practically difficult. Adopting ODL in a creative and innovative manner utilising ICTs and Open Education Resources (OER) suitable to local conditions can achieve livelihoods generation. “Eradicating extreme poverty and hunger” being the first goal out of eight UN Millennium Development Goals (2000), there is no alternate for third world countries except adopting ICT enabled ODL technology to empower the poor and marginalised to achieve the goal within the time frame (2015). This paper attempts to focus on three case studies where ICT mediated ODL technology contributed for knowledge and skill development among the rural people leading to livelihoods generation and improved their lives.*

### **INTRODUCTION**

In this era of the knowledge society and knowledge economy, access to ICTs to share the knowledge, information and provision for necessary skills to the rural poor and marginalised is paramount for generating livelihoods to eradicate poverty and to achieve rural prosperity. Connecting the people by utilising appropriate information and communication technologies for creating a ‘Lifelong Learning’ environment through knowledge / information networks and O.D.L. resources is essential. Open Distance education Technology and resources are creating variety of learning, advisory, knowledge and information network centres for the benefit of rural people; agricultural farmers, women, rural youth enhancing their awareness, capabilities and skills that create livelihoods.

ICTs enabled knowledge networks using a mix of distance education approaches can help the poor and marginalised for their development. ODL provide - content, methods, language, physical access, literacy, course development and technology adoption. Many other advantages the Distance Education offers like life long learning opportunities, provide for interactive and participatory learning and its potential for community learning and knowledge sharing can help the communities to develop knowledge networks that create, share, disseminate and preserve knowledge that is crucial for their development.

### **LAND AND PEOPLE OF INDIA**

India is one of the oldest civilisations in the world with variety and rich cultural heritage. India located in the continents of Asia covers an area of 32,87,263 sq.kms and is 7th largest country in the world. India comprises of 28 States and 7 Union Territories. The density of population in 2001 was 324 per sq.km. India’s population as on 1st March 2001 stood at 1,028 million (532.1 million males & 496.4 million women). The literacy rate in the country is 64.84%, 75.26% for males and 53.67% for females. The literacy rates from state to state differ. Agriculture is the main stay of Indian economy.

Agriculture and allied sectors contribute for nearly 22% of Gross Domestic Product (GDP of India) and as about 65-70% of the population is dependent on agriculture for their livelihood.

### **Mass Communication in India**

The Ministry of Information and Broadcasting is responsible for development and regulations of information broadcasting and film sectors in India, Prasara Bharathi, Doordarshan (T.V.) as its constituents. Network Growth of All India Radio : Radio broadcasting that began in India in the early 1920's has a network of 225 broadcasting centres covering 91.42% of the area and 99.13% of the population and number of transmitters is 361 as on 2008.

Doordarshan (Television) is India's public sector broadcasting service is one among the largest terrestrial television network in the world. The T.V. service was started in 1959 as an experiment to transmit educational and developmental programmes. At present the network consists of 64 Doordarshan Kendras/production centres, 24 Regional News units, 126 Doordarshan Maintenance Centres, 202 H.P. Transmitters, and 828 Low Power Transmitters. The Doordarshan (D.D). and Dordarshan - 1 (DD – 1) channels and National T.V. Channels. The area and population coverage are; D.D. Channel coverage area is 24.4 and 48.5 population. The D.D - 1 National Channel coverage is 79.4 area and 9.4 population.

The development experts in India firmly believe that knowledge, information and communication must become basic tools for the poor and marginalised for improving their livelihoods and lives.

The following three case studies of Rural India, reflect the adoption of ICTs and ODL Technologies for promoting inclusive growth and development of livelihoods, health and education of rural and marginalised people.

### **CASE STUDY I:**

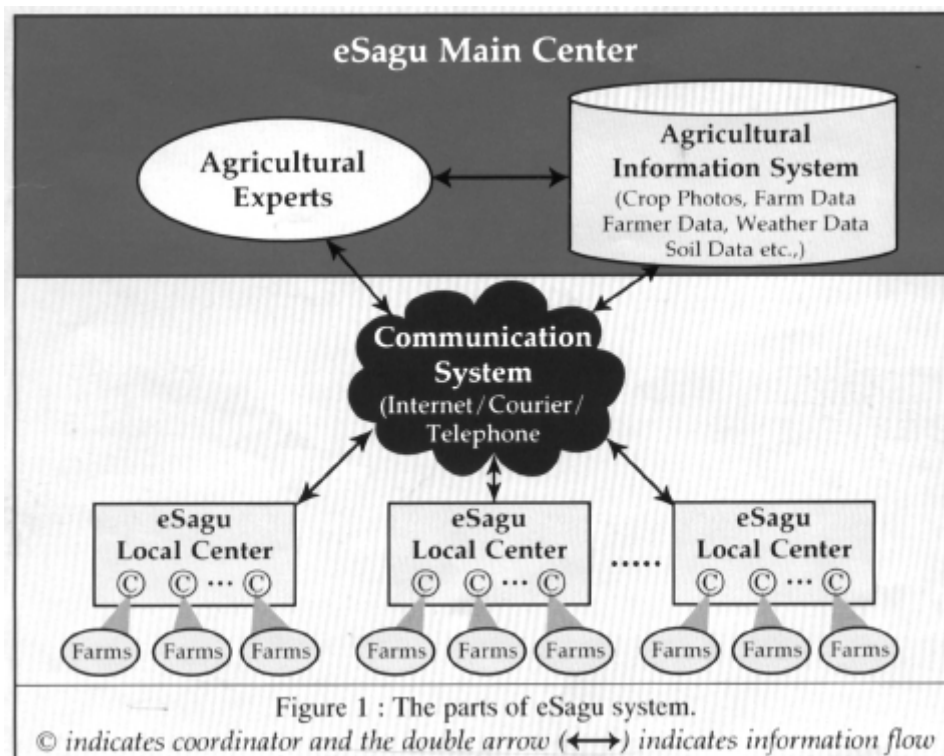
#### **e-Sagu : ICT Mediated Agro, Advisory Support to Farmers:**

Despite, successful research on new agricultural practices concerning crop cultivation, Indian farming community is facing a multitude of problems to maximise crop productivity. The expertise and scientific advice regarding crop cultivation is not reaching farming community, which is a major reason majority of farmers not getting upper bound yield. \_Indian farmers need timely expert advise to train them to increase their crop productivity.

#### **What is e-Sagu?**

e-Sagu is an IT based research project of Media Lab Asia executed by International Institute of Information Technology (IIIT), Hyderabad in the state of Andhra Pradesh, to develop and deliver personalised agricultural expert advise to each farmer on time to improve agricultural productivity and profitability. 'Sagu' means 'cultivation' in local language (Telugu) of the State of Andhra Pradesh. e-Sagu depicts e-cultivation, which is a novel internet application for effective and scalable agricultural expert advise dissemination system to the farmers, based on their crop situations received in the form of text and digital photographs through internet.

**'e-Sagu' Operational Model :**



**Figure-1 : Operational Model of e-Sagu, Source : IIIT, Hyderabad, A.P.**

The operation of e-Sagu is as follows. A team of agriculture experts' work at e-Sagu (main lab) are supported by agricultural information system. One e-Sagu local centre is established for a group of about ten villages. Educated and experienced farmers (who are from the villages) work as coordinators. Depending on the crop, each coordinator is assigned with a fixed number of farms. The coordinator collects the registration details of the farms under him including soil data, water resources, and capital availability and sends the information to the main e-Sagu system. Every day, the coordinator visits a fixed number of farms and takes four to five photographs for each farm. A CD is prepared with the photographs and along with other information and transported to the main centre by a regular courier service. The Agricultural experts, with diverse background (Entomology, Pathology, Agronomy...) at the e-Sagu (main) lab analyze the crop situation with respect to soil, weather and other agronomic practices and prepare a farm and crop specific advice. At the local e-Sagu center, the advice is downloaded electronically through a dial-up Internet connection. The coordinator collects the advice prints out and delivers it to the concerned farmer. In this way each farmer gets the proactive advice at regular intervals starting from pre-sowing operations to post-harvest precautions.

**Table -1 gives Details of e-Sagu implementation 2005-06 :**

Description	Value
Number of Centers	8
Number of Villages	35
Number of crops	30 + Aqua
Names of Major crops	Cotton, Chillies, Paddy, Groundnut, Castor, Redgram and Fish
Number of farms	4,894 + 160 (fish ponds)
Number of advices delivered	35,925
Number of crop photographs	2,62,136 (2.6 lakhs)
Number of fish photos	7,195 (Fish photos) + 1,723 (Report photos)
Number of photos per observation	5

Source : IIIT, Hyderabad, e-Sagu project

The evaluation report of 2006 of IIIT, Hyderabad on e-Sagu project gives the details of the benefits received by the farmers through e-Sagu. (Table - 2).

**Table - 2 Details of Benefits Accrued to Farmers Due to the Efforts of e-Sagu :**

S. No.	Gain in Fertilizer	Gain in Pesticide	Gain in Yield	Total Gain
Cotton	419	1140.6	3349	4908.6
Chilli	751.2	1093.8	6040.1	7885.1
Paddy	315.2	795.3	699.9	1810.4
Red gram	293	451.7	484.8	1229.5
Groundnut	282	70.5	900	1252.5
Castor	218	225	1360	1803
Major Crops	425	890	2398	3713
Other Crops	585.1	1117.2	4694.55	6396.85
<b>All Crops</b>	<b>443.6</b>	<b>928.8</b>	<b>2501.6</b>	<b>3874</b>

Source : IIIT, Hyderabad, e-Sagu project.

### **Benefits of e-Sagu Project**

The important benefits of e\_Sagu for farmer community are:

- It provides a quality personalized agro-advice to the farmers and averts problematic situations.
- It enables farmers (marginal and poor) to cultivate with the same efficiency as agricultural experts.
- It capacitates rural livelihoods and generates rural employment.
- It provides strong database to support decision making and documents success stories and new problems.

- It significantly reduces the lag period between research efforts and field application.

#### **Collaborators and Partners of e-Sagu :**

The e-Sagu system is being developed by IIIT, Hyderabad and Media Lab Asia under the aegis of Media Lab Asia. The development/deployment and collaborators include National Institute of Smart Governance, Acharya N G Ranga Agricultural University (ANGARU), Byrraju Foundation, ILFS, M/s Janani Foods Pvt. Ltd., NASSCOM Foundation, PRAMAN Allianz, Sowbhagya Krishi Vikas Pvt. Ltd., and Confederation of Kisan Organizations. The organizations such as Central Research Institute of Dry land Agriculture (CRIDA), National Institute of Agricultural Extension Management (MANAGE), and Centre for Environmental Studies are also associated with the project.

- "e-Sagu" has been recognized as one of the worldwide latest novel internet applications in the "Innovative Application Case Study 2006" of Institute for Information Industry, Ministry of Economic Affairs, Taiwan.
- e-Sagu has been awarded the CSI Nihilent e-Governance Award for the year 2005-06.

#### **CASE STUDY - II:**

##### **Knowledge Connectivity to Rural people through Village Knowledge Centres (VKC) :**

The Village Knowledge Centres(VKCs) are launched by The M.S. Swaminadhan Research Foundation (MSSRF), Chennai, state of Tamilnadu is, Information Communication Technology (ICT) based rural development initiative to bridge the digital, technological, socio, economic and gender divide in rural India. The Village Knowledge Centres (VKCs) are the centres that provide relevant, timely information on weather, crop management marketing, health and education for all the farm families of community of Village Knowledge Centre.

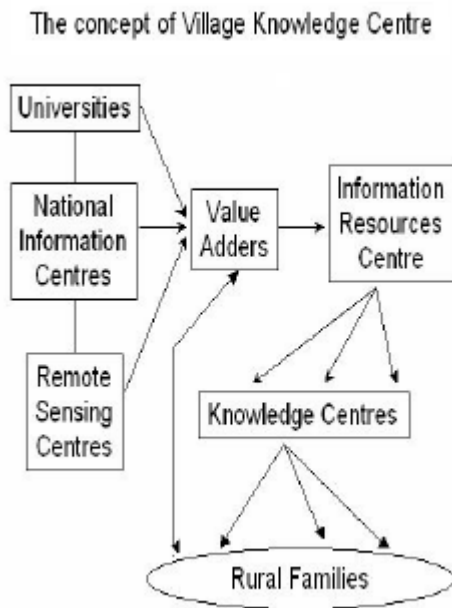
- The seed was sown for VKC in 1997 by MSSRF. "National Alliance for Mission 2007", a Mission taken up by MSSRF, for mobilising the power of informatics and Communication Technologies (ICT) for meeting basic human needs and livelihoods. This programme was launched with the motto "Access to information - the key to Holistic Rural Development".
- In 1998, the Information Village Research Project was established with financial support from International Development Research Centre (IDRC) Canada. The Information Centres later renamed as Village Knowledge Centres.

The humble beginning was made in three villages in Pondichery (State of Tamil Nadu, India).

In this case few people (men and women) from that village(s) are empowered or capacitated as ICT - Self Help Groups that manage the operational aspects of those VKCs. The development goal aimed by VKCs is taking ICTs to every village is accomplished by providing a platform for partnership among different agencies and individuals setting up information Kiosks and ICT based methods adopted for knowledge empowerment of rural people.

The information centres were originally started in some houses of the village. Later the information centres developed into Village Knowledge Centres with close partnership with organisations such as Agricultural Universities, Krishi Vigyan Kendra (KVK), human and animal health centres, institutions, Research Laboratories, field stations and marketing agencies etc.

**Figure-2:**



Source: MSSRF

VKCs have emerged as people - Centred project firmly focusing on their needs and contexts. Connectivity and content were given attention.

#### **Steps involved in Establishing VKC :**

- The work in each village (covered) commences with the study by social scientists/social workers getting to know the people, their needs, level of their familiarity and access to ICTs(a bottom-up model).
- Fostering sense of belongingness and local ownership of VKC is an important feature of this programme.
- Village community has to provide a space (room) to MSSER in a building, which has easy access to people and volunteers and pay for electricity and upkeep the centre.
- The Village Volunteers are trained by MSSRF in operation of computers and maintenance of the communication equipment as well as gather information (market rates, weather information, health care, water conservation and management techniques, food security etc.)

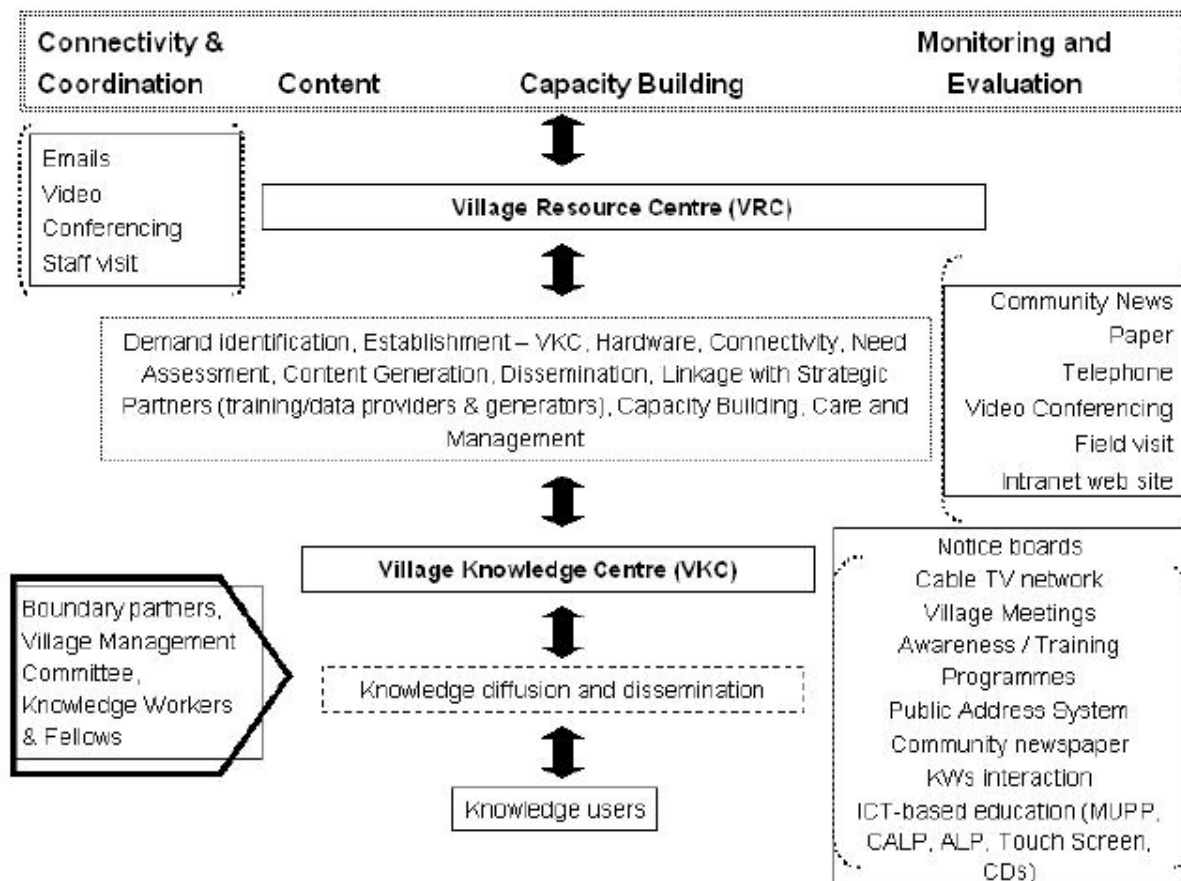
The extension activities of V.K.C. involves mainly, providing information, knowledge and skills development transforming "know how to do how".

#### **'Hub and Spokes' Model for Knowledge Network:**

The National Virtual Academy (NAV) for Rural Prosperity of MSSRF in Collaboration with Indian space Research Organisation (ISRO) resulted in Satellite Connectivity to 5 centres in Tamil Nadu. Village Resource Centres (VRCs) being the hub centres at block levels for the cluster of Village Knowledge Centres (VKCs). The National Virtual Academy developed data bank and repository of knowledge in Tamil language for intra-website created for the purpose of accessing VRCs and VKCs. Over a period of 3 years, MSSRF has established 15 VRCs and 72 VKCs in Tamil Nadu and Paudicherry states in collaboration with Indian Space Research Organisation (ISRO).

**Figure – 3: ISRO - MSSRF Village Resource Centres and Village Knowledge Centres:**

**Operational Model**



**Source: MSSRF**

The 'hub and spokes' model of VRCs and VKCs are providing tele-nutrition, tele-education, tele - medicine, tele-agriculture, tele-Fisheries, e-commerce to rural people and effectively managing the knowledge / information dissemination in association with Local Governments(Gram Sabhas) and ICT Self Help Groups.

**CASE STUDY - III :**

***Community Radio for the development of livelihoods for rural women :***

Access, control and management of knowledge/information and communication facilities by the local women living in rural communities will go a long way in promoting their livelihoods and their living conditions. Integration of ICTs with traditional knowledge systems at community level provide for rapid information exchange promoting development of the people of that community.

**Community radio in Machanoor village (Medak District), Andhra Pradesh :** It is a case study of the control and management of Community Radio by the women of that village community for their development.

The full-fledged 'Community Radio' was set up in Machanur, Mahabubnagar District in Andhra Pradesh by Daccan Development Society (DDS) a Non-Government Organisation (NGO) with the help of UNESCO, which provided part of funds. The union cabinet cleared the proposal to licence the Community Radio Station on 16th November 2006.

The Community Radio studio building was made with locally available low cost material. Two 16 and 4 channel mixers and stereo recorders, two 100-watt FM transmitters with a coverage area of 30 km. radius reaching out 100 villages. It was a first success story that herald demonetisation of India's airwaves making 'People's Radio' a reality.

### **Benefits:**

Community Radio bridges the information / communication gap and facilitates participation of the rural people of specific geographical community, as the mainstream media are not able to provide space for them.

Community radio in the ideal situation is the by product of participatory process of consultation, reflections, discussions and becomes a part of wide ranging activities with in the 'sangham' (rural women self help groups) community. It is a kind of communication tool for negotiation with the outside world for the people, who are not literates, are able to manage their sanghams activities and 'micro credit' process and marketing of the products, through oral dialogue and discussions facilitated by the use and management of ICTs (Community Radio) at their disposal and control.

Women activists who are in 'sangham' (women groups) using tape recorders earlier to carry information to sanghams and to get feedback, making radio programmes has become an easy task for them. They have carried more than 600 hours programmes on different issues related to community. In the words of 'General Narasamma' (the dalith woman leading their programmes at Machnoor):

*"It is our radio and we will talk about seeds, crop diversity, organic farming, health, hygiene, women's problems and sending children to school, virtually everything that touches the community".*

Women of Machnoor have great expectations from the 'Community Radio'. Radio programmes tailored to community needs is not only lending voice to the voiceless but also facilitating to use the information and knowledge they acquired for their livelihoods.

**Conclusion :** The above case studies of Rural India reflect on the need, scope and necessity of partnership of organisations in realising the development of livelihoods through Technology mediated ODL approach and the need for intervention of concerned Governments, national and international bodies like UNESCO, COL etc., for policy making, licensing air waves, internet connections and funding for the creation of Technology Mediated Open Distance Education (Tech-MODE) Knowledge Networks that contribute for the development of livelihoods and knowledge society.

The principles and recommendations given in the "Knowledge Map" of "ICT for Rural Livelihoods" frame work paper for Sustainable Livelihoods Approach (SLA) can be applied to any Tech-MODE livelihood generation development project of any region/country. The SLA principles are: People centred, Responsive and participatory, Multi level, Conducted in partnership, Sustainable and dynamic.

It is desirable and useful if COL can document and analyse such case studies(of third world countries) on Tech-MODE for livelihoods to identify the barriers experienced by such livelihood projects in accessing and generating content and information so that COL can play a catalytic role in creating knowledge networks and partnerships.



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