

# **e-Arik\***

**Dr. Saravanan Raj**

## **1. Goals & Objectives**

- To assess the agricultural information needs of tribal farmers.
- To experiment ICTs in agricultural extension services provision to the tribal farmers.
- To provide computer training and capacity building to the tribal farmers and others
- To assess the impact of ICTs in improved agricultural extension services provision to the tribal farmers.
- Working (Specific) Goals and Objectives
- Focused group discussion and ICT awareness programmes
- Farmers information needs assessment
- Survey on ICT indicators and infrastructure
- Bench mark survey on farm communication input pattern
- Establishment of village knowledge centre
- Developing a prototype for agricultural knowledge information system
- Dissemination of agricultural information
- Locally relevant content development and website hosting
- Digital documentation of pests and diseases
- Documentation of farmer's orchard history
- Documentation of "Adi" tribes traditional homestead agro-forestry
- Farmer participatory multimedia preparation
- Farm advisory publications in project portal
- Information on governance, health, and education
- Computer literacy to the villagers
- Local market and weather forecasting information dissemination through project web portal
- Organising farm multimedia shows at village knowledge centre
- Conducting village advisory committee and project review committee meeting
- 19. Identification of ICT impact indicators and project impact assessment
- Consultative workshop and policy recommendations

## **2. Spread of Project service users**

First level users

- Yagrung villagers and near by
- Village tribal people of East Siang district, Arunachal Pradesh - Farmers - Common public, youth and children - Field level extension personnel of agriculture and rural developmental departments.

*This chapter is re-produced with permission from the book "Transforming Government – eGovernment Initiatives in India, Editors: R K Bagga and Piyush Gupta, Published by : The ICAI University Press, 2009.*

## Second Level users

- Tribal Farmers and villagers of North-East India
- Extension personnel, Subject matter specialist of KVKs in North-East India
- Scientists, farm & rural development administrators, policy makers and others

### **3. Services provided**

- Agriculture and allied sector information dissemination through ICTs at e-Arik: Village Knowledge Centre and also through e-Arik web portal
- Farm advisory services at the farmer's field
- Digital documentation of pest and diseases symptoms for the benefit of farmers and other farm stakeholders
- Documentation of tribal farmer's crop history for the ready reference
- Farm market and weather information
- Announcements and scroll messages on farm training programmes
- Information provision in the governance, health, and education through ICTs
- Digital publication and dissemination of farm advisory publications, survey reports, news letters and farmers training reports through web portal
- Computer education and awareness to the farmers and school children
- Organising farm multimedia shows
- Organising on-farm training and demonstrations
- Arranging scientist field visits and farmer-scientist-project staff interaction sessions
- Facilitating farmer to farmer communication
- Developing village knowledge managers
- Facilitating multi-agency extension through village knowledge centre

### **4. Geographical spread of project implementation**

As a maiden experiment to develop e-Agriculture prototype in Arunachal Pradesh State, e-Arik project covers 12 villages in the East Siang District. Based on experience of e-Arik project the e-Agriculture prototype is to be duplicated to the entire state.

### **5. Project Timelines and milestones**

- August, 2006- Project design and submission to the funding agency
- March, 2007- Project approval from DSIR, MoS& T, GoI.
- March, 2007 & April, 2007- Selection of the villages
- April, 2007 & May, 2007- Focused group discussion, group meetings, awareness programmes with villagers
- April, 2007 & May, 2007- Farmers' information needs assessment
- April, 2007 & May, 2007- Bench mark survey on farm input pattern
- April, 2007 & May, 2007- Survey on ICT indicators
- June, 2007- Establishment of Village Knowledge Centre (VKC)

- June, 2007 to August, 2008/ till date- Content development, interactive, farmer friendly website hosting & updating
- June, 2007 to August, 2008/ till date - Digital documentation of farmers field pest and diseases symptoms
- June, 2007 to August, 2008/ till date - Integrated provision of agricultural information services through ICTs
- June, 2007 to August, 2008/ till date - Awareness, training on ICTs and capacity building among rural youth, women and others
- July, 2007 to August, 2008/ till date - Multi media-film shows/ demonstrations/ field days/ group discussion to create general awareness

## 6. Direct cost and Time savings to avail services

Through e-Arik project, 500 tribal farmers are getting on-farm advisory services (minimum two times per month)/ information from Village knowledge Centre, Yagrung village with the free of the cost. Further, 100 school students had basic computer education and 500 farmers had awareness on ICTs at e-Arik village knowledge centre, Yagrung village. Manual System 500 tribal farmers for getting agricultural and other information from traditional method 500 farmers X 24 times per year (minimum monthly two times) X Rs. 100 (Bus fare to visit nearest agricultural extension department)= Rs. 12,00,000 Through e-Arik Project, 100 school children imparted basic computer training and 500 tribal farmers imparted awareness on computers. To get computer training and awareness at Nearby computer centre 100 school children per year X Rs. 5,000 (for basic computer course) = Rs. 5,00,000 500 Tribal people (for computer awareness) X Rs. 1000= Rs.5,00,000 Total cost saving by the users due to e-Arik system: Rs. 22,00,000 (Rs. 12,00,000+5,00,000+ 5,00,000)

Direct time savings Existing system (e-Arik system) 1 farmer gets 24 advisory visits by e-Arik project staff / he/she can get information at his/her doorstep. 500 farmers X 30 min per visit X 24 numbers= 6000 hrs =750 man days Manual system One day requires to visit nearest agricultural extension department 500 farmers X one day for visiting nearest agricultural extension department at Pasighat X minimum 24 times per year = 12,000 man days Direct time saving through e-Arik project: 11,250 man days

## 7. Direct cost and Time savings to deliver services

Through e-Arik project, 500 tribal farmers (contact farmers) are getting on-farm advisory services (minimum two times per month)/ information from Village knowledge Centre, Yagrung village with the free of the cost. Cost incurred in the e-Arik system From March 2007 to July, 2008 Manpower (Project staff)- Rs.1,23,384 Equipment; 2, 40,745 Consumables- Rs. 54,589 Contingency- Rs.42,981 Computer Professional Charges- Rs.15,000 Travel- Rs.76,250 Power back-up, publication- Rs. 33,647 Over Head- Rs.1,00,000 Total- Rs. 6,92,596 Manual system (in the Extension Agency-Dept. of Hort./ Dept. of Agril.) Cost for one year Staff salary= Rs. 16,92,000 Vehicle depreciation= Rs. 50,000 POL=Rs.2,25,000 Farmers training and demonstration= Rs. 2,00,000 Office

*This chapter is re-produced with permission from the book "Transforming Government – eGovernment Initiatives in India, Editors: R K Bagga and Piyush Gupta, Published by : The ICFAI University Press, 2009.*

maintenance/consumables/contingency=3,00,000 Total: Rs.23,42,000 Direct cost savings to deliver services: 23,42,000 – 6,92,596=16,49,404

Existing System (e-Arik system) Man days= (4 facilitators+1computer instructor+2 research fellows+ 1 Project Fellow) 8 personnel X 25 days/per month X 12 months)= 2,400 man days or 19,200 working hours per year Manual system To cover 500 farmers at their field/orchards in the remote 12 tribal villages requires 30 extension personnel fulltime work. Mandays= (30 Extension personnel X 20 days/per month X 12 months)=7,200 man days or 57,600 working hours Direct time saving= 4,800 man days or 38,400 working hours per year

## **8. Replication**

As a maiden experiment to develop e-Agriculture prototype in Arunachal Pradesh State, e-Arik project covers 12 villages in the East Siang District. Based on experience of e-Arik project, the e-Agriculture prototype is to be duplicated to the entire state or North-East India.

## **9. Implementation model**

The e-Arik project is a two year research project funded by the DSIR, and implemented by the College of Horticulture and Forestry, Central Agricultural University, Pasighat, Arunachal Pradesh. Project team in consultation with “village tribal council” (Kebang) implements the project.

## **10. Technologies**

Dial-up internet connection and other ICTs (TV, Radio, Telephone, and Mobile)

## **11. Capacity Building**

Project members are trained by the experts from the College of Horticulture and Forestry, Pasighat. Project team also participates in workshop, seminar for capacity building.

## **12. Project Financials/Sustainability**

From March 2007 to July, 2008

Equipment- Rs. 2, 40,745

Manpower (Project staff) - Rs.1, 23,384

Consumables- Rs. 54,589 Contingency- Rs.42, 981

Computer Professional Charges- Rs.15, 000 Travel- Rs.76, 250

Power back-up, publication- Rs. 33,647

Over Head- Rs.1, 00,000

Total- Rs. 6, 92,596

*This chapter is re-produced with permission from the book “Transforming Government – eGovernment Initiatives in India, Editors: R K Bagga and Piyush Gupta, Published by : The ICAI University Press, 2009.*

**Financial Sustainability:** To ensure the financial sustainability of ICTs/ e-Governance models in remote tribal areas, minimum first two years villagers and other stakeholders need to be demonstrated potential of ICTs for agriculture and rural development. Without having any awareness on potentials and benefits of ICTs, villagers may not pay for the services. Hence, as first step, the e-Arik project is demonstrating potentials and benefits of ICTs in agricultural extension services and other information provision. However, farmers are contributing in kind, for example villagers constructed a farmers training centre at e-Arik: village knowledge centre. Further, informal group discussion and survey indicates that the considerable proportions of the tribal farmers are willing to pay for the services of e-Arik project.

### 13. Project Teams and Leadership

- Project Team Principal Investigator
- Co-Principal Investigator
- Project Fellow
- Research Fellow
- Computer Instructor
- Farmer Facilitators

### 14. Key project Outcomes

#### **Sustainability:**

*Financial Sustainability:* To ensure financial sustainability following components were identified during the e-Arik project implementation:

- Contribution of community members in KIND
  - Providing building/ house/ infrastructure to host village knowledge centre
  - Construction of low cost farmers training centre
- Registration fee from tribal farmers for providing farm advisory services (Survey conducted by the e-Arik project team indicated that majority of farmers are willing to pay a nominal fee for services if e-Arik project)
- Nominal charges for On-line public utility forms downloading and printing
- Cost based digital photography
- Farm input unit for getting nominal revenue to village knowledge centre
- Collecting tuition fee for computer training to the school children, village youth and others.

#### *System Sustainability:*

- To make the system sustainable village advisory committee members are guiding the e-Arik activities and themselves getting the first hand experience of ICT initiative.
- Village Tribal Council - “Kebang” actively involved in the e-Arik activities and after the successful experimentation of e-Arik project, village knowledge centre will be handed over to village tribal council.

- The e-Arik web portal will be continuously updated and maintained by the AV & ICT Lab, Department of Extension Education and Rural Sociology, College of Horticulture and Forestry, Central Agricultural University, (CAU), Pasighat.

**Usage:** The e-Arik project used by the 12 remote village tribal farmers and extension personnel of developmental departments, other stakeholders of agriculture and rural development in Arunachal Pradesh The e-Arik portal technical information was added for the benefit of north-east farmers in to the India Development Gateway ([www.indg.in](http://www.indg.in)), C-DAC's one of the National initiative for rural development ([http://www.indg.in/agriculture/crop\\_production\\_techniques/technologies-for-north-east-india/technologies-for-north-east-india](http://www.indg.in/agriculture/crop_production_techniques/technologies-for-north-east-india/technologies-for-north-east-india))

**Usefulness:** For following aspects e-Arik project beneficiaries stated high rating and approval;

- Creating general agricultural and rural development awareness among tribal villagers
- Imparting information on new technologies
- Promotes eco-friendly and sustainable technology dissemination and adoption
- Develops vocational efficiency among villagers
- Develops new farmers groups
- Develops local knowledge managers
- Helps villagers to make use of local resources Empowerment:
  - a. Help to make timely decision by the villagers themselves
  - b. Suggests alternative ways to solve farming and other rural problems
  - c. Provides information for tribal farmer's livelihood security.

## 15. Service users Feedback Mechanism

Regular feed back digitally recorded at e-Arik village knowledge centre and also e-Arik laboratory. Further, conventional method of register maintenance is also in practice by the farmer facilitators.

## 16. Implementation Challenges

- Power (Electricity) cuts: Chargeable batteries and inverters are used
- Local Tribal Dialect: Local farmers facilitators used for communication in ADI tribal dialect. Hence, farmer to farmer communication was adopted.
- Frequent power cuts, road blockage during rainy season, regular telephone out of order creates problem in sustaining continuous service. Hence, offline materials, village library were established at e-Arik: village knowledge centre at Yagrung village.
- Limited scientific resources for Arunachal Pradesh State- such as; advanced farm technologies and package of practices. Hence, expertise from multidisciplinary scientists of College of Horticulture and Forestry was ensured for appropriate information dissemination.

## 17. Key Lessons learnt

- Locally relevant content accelerates dissemination of the information through the ICTs 2. Due to novelty or innovation of ICTs, involvement of users in the maiden ICT initiative is high in the least developed tribal villages
- Involvement of local tribal council members are essential for favorable opinion making among tribal villagers
- To cope-up with the frequent power and dial-up internet failure, village knowledge centre need to have offline materials/village library
- For knowledge dissemination among tribal farmers, variety of ICTs need to be used and important information need to be provided repeated manner in frequent intervals for better learning and reinforcement of the message.
- Village tribal council members, village opinion leaders (School teachers, progressive farmers...etc) play a pivotal role in creating awareness on ICTs among less educated tribal farmers/ villagers.
- Integrated rural information provision and computer training to the villagers is necessary instead of single sector approach.
- Local facilitators and local tribal dialect play a crucial role in the information dissemination process through ICTs.
- To ensure the financial sustainability of ICTs/ e-Governance models in remote tribal areas, minimum first two years villagers and other stakeholders need to be demonstrated potential of ICTs for agriculture and rural development.
- Along with ICTs, traditional extension communication methods need to be used during the initial stages of ICT penetration in remote and least developed tribal villages.

## Project Contact Details

Dr. Saravanan Raj  
Principal Investigator, e-Arik  
Department Extension Education and Rural  
College of Horticulture and Forestry, Central Agri  
Pasighat, Arunachal Pradesh  
[saravananraj@hotmail.com](mailto:saravananraj@hotmail.com)  
[saravanancau@gmail.com](mailto:saravanancau@gmail.com)