

## Chapter 4

# Use of ICT in Public Agricultural Extension

Public agricultural extension system in India is mostly driven by State Agriculture Departments as agriculture is a state subject. Even though extension is organised differently in each state, the extension officers work normally at district and block level. There is huge variation in staff to farmer ratio( 1: 300 in Kerala to 1: 2000 in Rajasthan) between the states during the start of this century (Glendenning, et al., 2010). To increase the staff ratio and to have country wide structure for extension, Government of India has initiated many schemes and Agriculture Technology management Agency has been started in every district with officers designated specifically to extension activities even beyond block levels. Even after such efforts the staff to farmer ratio was still low which prompted many state governments to look into innovative ideas for information dissemination. One of this is to initiate projects which use the increased telephone density in India's rural population after the introduction of New telecom policy. Some of the projects has benefitted the farmers in upgrading their skills and providing a sustainable flow of information from lab to farm. Some of this projects are described below.

### **4.1 WARANA Project (Maharashtra)**

This is one of the initial projects in which ICT has been used for the benefit of rural communities especially farmers. This initiative was in co-operative sector. Warana is a well developed rural area near Kolhapur in Maharashtra. What makes Warana different is the strong presence of cooperative movement called Warana Group of cooperatives(WGC). There are several cooperative societies functioning under the umbrella of WGC which includes sugarcane cooperatives, Dairy

cooperatives functioning as the same concept of Amul and various women cooperatives. Sugar cane is the main source of income for Warana community. As the cooperative becomes bigger, it becomes difficult to manage the sugar cane related processes which created delays resulting in dissatisfaction of the farmers. At that time the cooperative society decided to use ICT for resolving the issues cropped up due to large expansion in membership.

In a sugarcane cultivation cycle, three milestones are important with respect to factory and payment. First, the yearly registration of the cultivable land where changes in land holdings are recorded. The issue of harvest permits is the second important mile stone and last important mile stone is related to the payment information's from the factory.( This will be in stages). The project was aimed at facilitating communication between the cooperative and the farmer in all these cases.

Project was initiated on 1998 with an aim to smoothen the issues related to sugarcane payment as well as introduction of various other services which was useful to the farming community in general. Fifty four kiosks were opened in the area for facilitating the farmers. The payment was released by the cooperatives in four stages and on every occasion the date of payment release will be announced by the cooperative through local newspapers. Farmers can then approach the kiosk to get their payment slip ( which contain the details of payment credited to the bank) printed.

In addition to the above described milestones, the kiosks also keeps the record of the fertilizer taken on credit by the farmer( A small fertilizer shop is stationed near the kiosk) and also the transport cost borne by the farmer to send the sugarcane to the factory. Each kiosk is connected to a central server in the factory through wireless means and data is transferred to the server periodically. Some kiosks where internet was available started using internet to push the data to the server and in some other cases where the wireless transmission medium was not working, the operator will save the details in the disk and will go to the factory periodically to transfer the data. The operators invariably was selected from the community and this has increased the acceptance of the project among the local community. The project

was implemented in collaboration between the National Informatics Centre (NIC), the Government of Maharashtra, the Education Department and the Warana Cooperative Complex.

In addition to the sugarcane related processes a few e-government application were also being run from these Kiosks (Meera, et al., 2006)

- Information on cultivation practices and crop disease control
- e-Governance Health information, government programs, services and contact information, land records, licenses, birth and death certificates, submission of government forms online and emails to government officials about grievances.
- Utilizing IT to increase the efficiency and productivity of co-operatives by setting up a state-of-the art computer network, providing agricultural, medical and educational information to the villagers at facilitation booths in their villages;
- Providing communication facilities at the booths to link villages to the Warana cooperative complex, bringing the world's knowledge to the villagers' doorsteps through the Internet via the National Informatics Centre Network (NICNET), and establishing a geographical information system (GIS) of the surrounding seventy villages, leading to greater transparency in administration especially in matters related to land.
- Employment and agricultural schemes and government procedures;
- Automated assistance in completing applications for government documents such as ration cards and birth and death certificates;
- Crop information; bus and railway timetables; medical facilities; and water supply details.
- From the booths villagers can interact with the Warana management to register grievances and seek redress. Agricultural marketing information is available from the Warana web-server, giving market arrival and the daily prices of various regulated commodities.

The success of this project has been studied by several researchers and they have brought forward some key lessons from this project (Cecchini & Raina, 2002)

1. Assessing the information needs of the community

Before implementing any IT project the needs of local community needs to be analysed in details

2. Local ownership and participation

During the process of software creation and implementation also continuous interaction need to be maintained with the user community for suggestions.

3. Women and poor people's access

Special care need to be taken to ensure the access is available to women and marginalised communities.

4. Empowering grassroots operators

Finding the people with the right mix of skills from the local community and empowering them with knowledge is an important part in the success of any rural ICT program.

When we look at the project from the present status of communication facilities , this was very small project. But during 1998 it has heralded empowerment to rural farmers using ICT which was unprecedented in India. This Project therefore is always considered as a milestone in India's use of ICT for farming community.

## **4.2 Gyanadhoot Project (MadhyaPradesh)**

This project was started in Dhar district of Madhya Pradesh State during the year 2000. Dhar district during the 2000's was having a population of 1.7 million with predominantly tribal population. During 1999 Madhya Pradesh Government has asked district collectors to look into the possibility of creating computer networks in the district similar to the network of Warana of Maharashtra. Initial discussions were carried out with various stakeholder

including the villagers who were mostly from farming community. They opined that the services essentially required at the villages includes information about the prices of their product in their mandis and the documentation required regarding their land ownership. For any records regarding their land ownership , they have to run after the patwaris who by their nature of work will be moving in the field most of the time.

Initially in two phases thirty one Kiosks were opened for the project. These kiosks were opened in villages where block headquarters existed or villages with major mandis or villages on the major roads. When categorising these kiosks based on the population of the villages, seven were in the urban villages, eight kiosks were installed in the big villages, seven in medium villages with population 1000-4000 and rest are in the smaller towns. As per the planning each kiosk will be covering not only the village where it is installed but also will cover 20-30 villages around this( around a population of 30000 is covered by a single kiosk) (Mansuri, 2009).

The set up was based on a WAN network with server and nodes(the Kiosks). The server was installed in District Panchayat building. The kiosks were connected to the server through dialup data connectivity. The Kiosks were installed mostly in village panchayat building and is called *soochanalaya*. While the capital investment is made by the government, the operation of these kiosk is meant to be carried out in a sustainable model by the '*soochaks*' who were entrusted with the operation of the kiosks. They belong to the same village and at least matriculate. They are not considered employees but entrepreneurs. They are supposed raise their income by suitably pricing the services provided to the farmers. He will not receive any salary. He will bear the cost of stationery, maintenance and electric and telephone bills. He will pay 10% of income as commission to the Zila Panchayat for maintaining the net. Each Soochak is expected to earn a net income of at least Rs24,000 per annum at conservative projections. The necessary training were imparted to these '*soochaks*' by the district administration. Most of the services which are rolled out through the platform can be accessed through suitable menu reducing the requirement of expertise from these operators. These can be operated with minimum skills of data operator.

The services offered through these platform are (Mansuri, 2009) (Meera, et al., 2006)

#### 1.Mandi rates:

One of the important request from the villagers was about the information on the prices of the agriculture produce in the nearby mandis. To cater to their needs the information about the prevailing rates of important agriculture produce at the nearby auction centres

/mandis were made available through the system. A nominal charge of Rs 5 is charged for this service. Other details like volume of the available commodity as well as rate trends were also given to the farmer.

## 2. Land Records

The copies of land records were required by the farmers regularly to be produced at the banks for availing loans. This was yet another difficult task for a villager as he has to make many trips to the government to get this. The documents about land records including khasra were provided on the spot from these kiosks. Another important step was that the district administration was successful in ensuring that all banks accepted these documents for providing the agriculture loan.

## 3. Online registration of applications

Villagers need to visit the government offices which are far away repeated times for obtaining caste/income/domicile certificate. The platform ensured that all these applications can be lodged online in the kiosks. When the document is ready an email will be sent to the kiosks and then the applicant can collect the same from the concerned offices.

## 4. Village auction site.

Any villager intending to auction/sell any of his assets can register the same in the kiosks for a listing for 3 months. The interested villagers can browse through the list and contact the seller.

## 5. Public grievance redressal and transparency

Any public grievances about government services like electricity water supply etc. can be lodged through these platform. It was ensured that reply will be received within ten days. Regarding transparency all the beneficiary lists under various schemes are published through these kiosks making it easy for the villagers to peruse these.

The funds for this project from mainly from the state finance commissions share to panchayats. The operating expenditure is expected to be generated to the revenues generated from the model. Even though each kiosks was costing only Rs 75000, the additional kiosks were planned through private investments from the entrepreneurs. Banks also started

to provide loans for this purpose. Thus the entire scheme is independent of the government from an economic point of view and is financially self-sustainable and viable. Through this strategy, without any additional burden on the government, a mass-based and public-oriented autonomous and independent information technology system may be established in the rural areas in a short time.

As far as results are considered the farmers were able to identify the mandis where they get highest price for their produce. In some cases even 30-40 % of rise was obtained by the farmers for their produce. Another issue which got solved through this was the delay in receiving the information about fund transfers to village panchayats. Many a times village panchayats may not be knowing that the funds were received in their account resulting in delay in works carried out by panchayats. After the introduction of Kiosks information were passed through panchayats through electronic means speeding the process. In another instance the schools has requested the *soochak* to train their students in the computers. Thus it has resulted in additional income for the *soochak*. Adequate power back up in the form of UPS has been provided in each kiosks as many of the villages are facing acute power supply issues. Around 5 hours back up has been provided in the UPS. But some of the kiosks experienced problems in the initial phase during connectivity issue.

### **4.3 E Sagu**

E Sagu is an expert advisory system introduced in Andhra Pradesh which facilitates the delivery of personalised advisories to the farmers during each stage of the farming cycle from sowing to harvesting. The e-Sagu project was supported by Media Lab Asia, Ministry of Communications and Information Technology and IIIT Hyderabad.

There are five important parts to this system i.e. Farmers, Coordinators, Agriculture experts and communication systems. The coordinator is a progressive farmer in the village who is also educated enough to handle computer systems. He will be allotted some farms based on the crop cultivation. The experts will be centrally located and will be having access to the information system of the eSagu. The concept of the project is as follows. In normal extension system the extension officer or an agriculture expert will go to the farms and provide necessary advice to the farmers. The limitation of the system is that due to the shortage of extension worker and experts, the process may not happen regularly and when any specific events occur, the requirement for such visits increases many fold which could not be handled

by the experts. Here the concept is modified keeping this limitation in mind. Here the coordinator will visit the farms allocated to him regularly, take photos and with descriptions the same will be sent across to the experts for their comments. This will be sent online if sufficient bandwidth is available. Otherwise the same is stored in CD and sent through courier. The Experts after reviewing the photos will provide necessary advices electronically which will be downloaded by the coordinator and provided to the farmers.

The Process can be enumerated as below.

1. Farmer and Farm registration: During each farming cycle, the farm details are to be fed into the system. It includes farmer details type of crops etc.
2. Collection of crop status:  
The Coordinator will daily go to twenty farms and take five photos each of the crop condition in each farm. Any observation about the crop status is also added to the photos.
3. Data set preparation: The photos will be taken into the local centre and names as per the convention followed is given to the photos. The data set in the proper format is written in a CD as in many of the places band width was not sufficient.
4. Transmission of data set to agricultural information system:  
The prepared data set is sent across to the central place through courier.
5. Expert advice preparation: The experts will examine the photos and necessary advice is provided through the system. One advantage of this system is that the same photos can also be examined by multiple experts if such a necessity arises.
6. Down loading expert advice at the local centre:  
Once the expert advice is available in the system, the same can be downloaded by the coordinator.
7. Delivering advice to the farmer: The coordinator will explain the advice to the farmer and pursue him to act on it.

The scheme has been implemented across 10000 villages and there was very good results from these villages. Many researchers has evaluated the



systems. Some of the observation of Venkateshwar Rao et al (2012) is as follows (Rao, et al., 2012):

- Brings crop situation to the expert: The expensive farm visit of the experts has been substituted by much less costly data transfer.
- Technical improvements: The photos of good resolution can be zoomed in giving better visibility of issues compared to observation with naked eye.
- Diversified experts, comprehensive information: Many of the current issues need multiple expertise and this model offers the examination of the case by multiple experts.
- Coverage of more farms and accountability: As each advice is recorded and archived, experts will take due care as accountability can be fixed later.
- Acceptable periodic and round trip response time: The weekly response time of 48-72 hours was acceptable to the farmers.
- Documentation and content development: The entire photos and advises getting archived and this will be helpful in future agriculture extension.
- Cost of advice: The cost per advice per farm was found to be very small compared to the earlier model of expert visiting the farms.
- Aids in crop insurance and other government schemes: eSagu operation covers the entire crop cycle. The data set can be exploited usefully in the implementation of crop insurance.

Thus this project's success proved that the right kind of coordinators with clear target can go a long way in achieving the goals and empower the rural population. It is important to underscore the commitment shown by the progressive farmers in the success of this project. The acceptance of this kind of intermediaries among the stakeholders is another key area for any project. Analysis of this project has indicated that it has delivered considerable benefit for the farmers especially poor and marginal farmers. It is to be noted that major percentage of India's farming community belongs to the poor and marginal farmers. Therefore a scalable model

based on the principles used in this project is an important future step to be taken by the administrators.

#### **4.4 Interactive Information Dissemination System**

Interactive Information Dissemination System (IIDS) is implemented by Indian Council of agriculture Research under National Agriculture Innovation Project with the support of Media Lab Asia, National Institute of Rural Development Acharya N.G Ranga Agriculture University, Hyderabad and Mudra Institute of Communication Ahmedabad. This project is aimed to provide “Information to farmers as and when they require”. This project has carried out the analysis of a number of existing projects and done a detailed gap analysis. Overall objective of the project was as follows

- Assessment of the major ICT initiative in agriculture vis a vis the need of the farmer in various agro socio economic situations
- Suggest a set of Alternative ICT model based on the assessment of major situations
- Limited validation of some of the modules based on the infrastructure that is already available

IIDS is a push pull based system where the farmers can push the queries and pull the information needed from the experts. It consists of a smart phone and IVRS front end and a web based back end. The information is passed on through Voice messages, Text messages, Images and Videos. All the farm related information related to the farmer who is registered in the system is collected and kept in a centralised server. Whenever an expert gives an advice he will be having access to all this information so that a specific advice can be given to the farmer based on this information.

Pilot project has been rolled out in the twelve villages in AP consisting 6300 farmers during March 2013 (Anurag, 2014). The project was called Annapurna Krishi Prasar seva. Initially four KVKs namely Nellore, Amadalavalasa, Wyada, and Kampasagar was the nodal points for the project. They were connected to each other through a virtual private Network and a toll free number was also provided for the

use of farmers. The centralised server with communication network and toll free number was set up at ANGRAU Hyderabad. The KVKs received queries from the registered farmers on agriculture, Animal Husbandry and fisheries and provided answers to them. The field technical assistants has helped the farmers in using the interfaces and trained them in taking advantage of the system. In addition KVKs also used to sent voice and text messages in Telugu about weather, pest control etc. Thus the two major component of the system can be described as

1. Multimodal interface to the farmers for interacting with experts during various stages of cultivation.
2. Multimodal interface to the farmer in giving agro information the farmer is interested in.

Diagrammatically it can be shown as

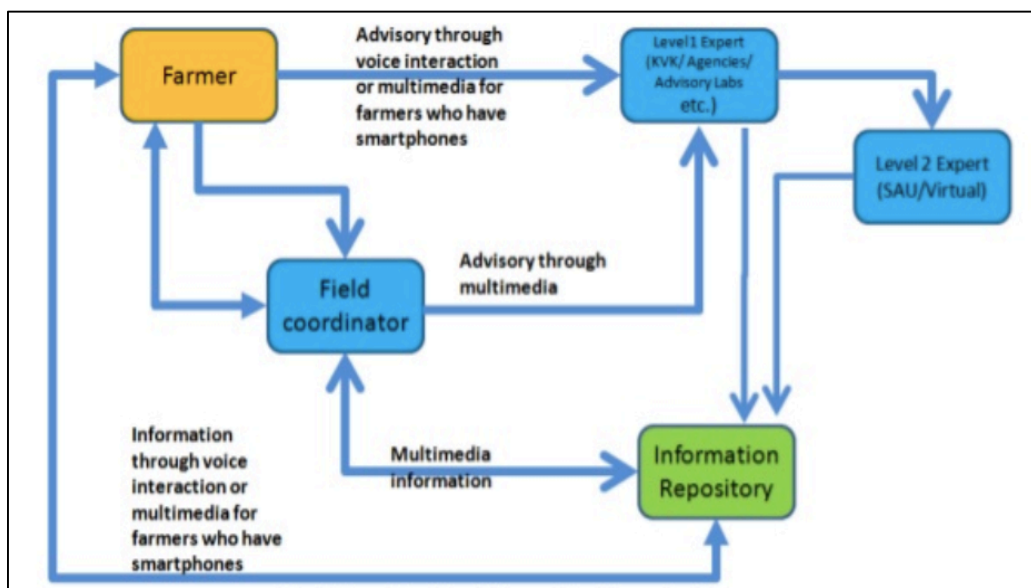


Figure 4-1 IIDS Interface Systems (Anurag, 2014)

There was three interface for the farmer to interact

1. Mobile application for the smart phone
2. IVRS system
3. Web based portal

During the evaluation of the project, farmers raised following observations

- Majority(57%) of the farmers were able to use the mobile phone based system independently. 38% farmers took the help from field technical assistants and 5 % from others.
- About 98 % of the farmers opined that AKPS was able to give information with clarity. On timeliness and understandability of messages also more than 90% farmers were satisfied
- Majority of the farmers agreed that their use of chemical fertilizer and pesticides were reduced and then too their crop production was increased.
- One of the major changes was about the source of information. Before the introduction of the system about 68% of the farmers were depended on input dealers for their informations and this was reduced to 35% after the introduction of the project

One of the key aspect of this project was the use of different modes of information channels (Text, Voice, Image and Video). Farmers ability to contact the scientist from the farm itself through mobile phone has helped the farmers a lot. The information was personalised through the database available in the system by which only relevant information is reaching the mobile of the farmer.

After the success of the system in Andhra Pradesh many other areas also introduced the system. Notable among them is the 'Mobile Based Agricultural Extension System in North-East India (m4agriNEI) along with Central Agricultural University (CAU), Imphal.

#### **4.5 e-mandi (Karnataka)**

*Mandis* are an important part of Agriculture eco-system and transparent functioning of *mandis* are crucial for farmer well being. Keeping this in mind the APMC acts were enacted in all the states to regulate the *mandis* for the welfare of the farmers. But as the time passed, this regulated *mandi* mechanisms became controlled by

intermediaries and the farmers dependence on this intermediaries were exploited by them. The Government of India has directed all states to bring more progressive act to control this regulated markets. Many states were very slow in implementing this modifications. In this context, the introduction of *e-mandi* in Karnataka was an important step towards bringing transparency to the market.

To make the concept of *e-mandis* operative, Karnataka has amended its APMC act and accepted most of the recommendation contained in the model APMC act given by Government of India. To effectively roll out the *e-mandis*, Rashtriya e-Market Services Private Limited (ReMS) was formed as a joint sector between Karnataka Government and NCDEX spot exchange Limited (NCDEX, a public limited company that provides commodity exchange platform for trading). As with any joint sector company, ReMS combined the decision taking mechanism of private sector with the accountability of government sector. It is pertinent to mention that in Karnataka some mandis already has implemented automated systems developed by National Informatics Centre(NIC). The important feature of this project from the earlier NIC systems was that the concept is based on a unified market for Karnataka in place of automated markets working in silos. The NIC system was replaced by one from NCDEX which allowed bidding from any trader registered in any *mandi*.

The platform has introduced many new steps which was not available in existing manual systems. These are

E-entry : Agriculture produce that enters the *mandi* are entered electronically at the gate.

E-tender/e-auction : Trading occurs through the online platform. The trade can happen either through an electronic tender or an electronic auction.

E-permit : APMC permit required for moving the produce which was traded during day out of market is generated electronically.

Information dissemination : The winning bid details is disseminated through different means including electronic methods like SMS and electronic display boards in the *Mandis*.

Nidhi Aggarwal et al (Agarwal , et al., 2016) in their study of the system has pointed out four different areas of challenges and achievements in this system.

### 1. Automation and Unification

This is one of the most important achievement of the project. Earlier systems of manual tender was prone to collusion between the commission agents. In additions there was no transparency and it was alleged that the bids were altered/manipulated later to favour some commissioning agent. The entire process of tendering used to last up to even 9 PM and manual errors were also used to creep in while finding the winning bid. All this has changed by the introduction of the system. The system become fast so that the result can be declared by around 4 PM so that farmers can return to their home with money before the night.

In the case of unification, even though state wise bidding was allowed , the study found that there was not much outside bids for auctions of a particular *mandi*. The probable reason was traders were not sure of the quality of the agriculture product without physically seeing the agriculture product.

### 2. Assaying Facilities

The important of assaying facility comes from the fact that quality testing is key factor in deciding the acceptance of cross *mandi* trading by traders. But the facility for quality testing is limited and where ever this is available there is a delay for getting the test results. The traders are still depended on their commission agents for testing the agriculture produce. These delays can increase manifold on a high arrival day. This area is clearly an area of challenge and needs to be further studied for effective implementation.

### 3. Market competitiveness and collusion

Even though the system is not prone to collusion theoretically, what is practically happening in many *mandis* is just the opposite. In many *mandis* traders collude before the e-trading starts and they will bid the agreed

rates during the discussions defeating the whole purpose. In some cases still the market is dominated by one or two traders. Due to the lack of assaying facilities it was found that cross *mandi* bidding is almost non-existent. In some *mandis* more transaction starts happening on non-e-auction dates. During e-auction dates only small part is auctioned thus arriving at a price and on next non-e-auction dates the remaining lots are sold based on the referral rates arrived during e-auction.

#### 4. Online Payments

The project also aimed at transferring the price of the produce directly to the farmers bank account, ReMS acting as a clearing agent for the same. But the same was not picked up much due to the opposition of farmers as well as traders.

While the system after the initial teething troubles has stabilised, it has not generated much enthusiasm to the stakeholders including the farmers. While all the stakeholders admitted that the settlements were faster due to e-auction, further additional benefits which was intended seems not materialised yet. Farmers are still selling their produce outside the *mandis* to the commission agents and some big traders still have control of the prices in the *mandi*. The quality checking process was not welcomed by farmers because of the long delays and the fear of lower prices if the quality results were low. The traders were not at all enthusiastic about the online payments as it would force them to pay upfront while in existing system the commissioning agents was allowing them for delayed payments upto 6 months in some cases. During the above study even *mandi* officials were not so optimistic about quality testing facilities and online payments. The project underlines the importance of initiating process reengineering and change management along with introduction of e-governance project. In a complex environment like agriculture market where stakeholders have vested interest regulatory mechanisms need to be put into place for the success of any governance system

#### **4.6 eKrishi Kiran (Gujarat)**

This project of Gujarat state government attempts to promote the use of scientific methods among farmers. After the success of green revolution, the productivity of the farms remained stagnant causing concerns in the scientific community. One of the reasons of such stagnation was the indiscriminate use of chemical fertilisers without analysing the requirement as per the condition of the soil. This project aims at bridging that gap and aims at providing advices to farmers based on his farms' soil condition making the advice more scientific, precise and need based.

Government of Gujarat has selected Anand Agriculture university(AAU) for implementing this state-wide program. (Government of Gujarat, 2008).Under this project the AAU has developed a software which provides fertiliser recommendations based on the soil type and the nutrient requirement of crop. This will prevent the over use of certain fertilisers thus saving money for the farmers. The project also aims at suggesting alternate crop pattern based on the soil conditions.

A record is initially created for each farms with details from soil tests. Farmers are encouraged to get their soil tested and the data is entered into the system. Since soil types in a village is not varying much for each village a village soil type is calculated based on the soil type of the farms already tested from the village. This is used when advice to any farmer who has not got his farm tested for soil health.

The program has showed good results in improving the fertiliser use and reducing cost to the farmers.

#### **4.7 e-Krishi (Kerala)**

e-Krishi is a project implemented in Kerala by Kerala State Information technology Mission. The project addresses the issue of transaction management and information dissemination. It strengthen the farming community by providing relevant information related to market prices, market demand, good agricultural practices and access to a transaction platform where they can trade their produce without the help of middlemen. The pilot phase was started during 2006 in Malappuram district and later extended to 7 other districts in Kerala. The project was externally funded by UNDP. The project was supported by NISG,UNDP,KSITM,IIITM-K and State Agriculture Department. The Pilot project in Malappuram has extended to 146 e-krishi centres

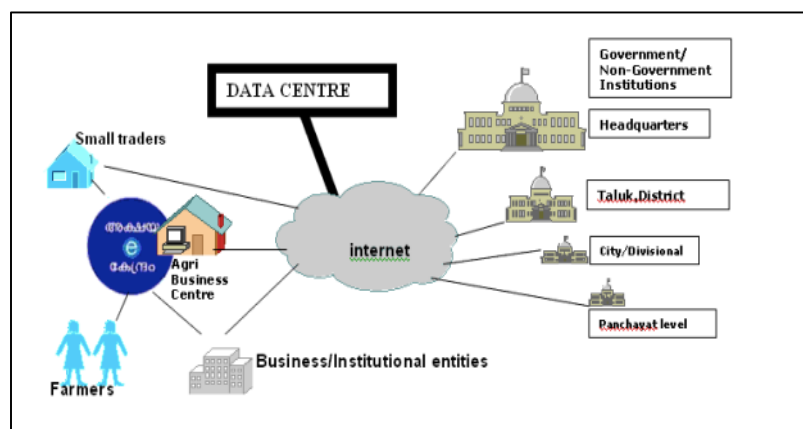


spread over 99 grama panchayats. The e centres are selected so that farmers need not walk more than 3 km to reach a e-centre (Krishnan & Varghese, 2014).

The e-Centres are the *Akshaya e-Centres* set up by state IT mission for IT enabling the rural Kerala. The Agri Business Centre(ABC) attached with the *Akshaya Centres* act as the delivery point for information and inputs. Each ABC is expected to register 100 farmers along with the details of his farm.

**Bhoomi Club:** The formation of club is one of the innovative ideas in this project. Club is formed with active farmers as its members with progressive farmers, input dealers etc playing active role. The local gram panchayat president is the chief patron and the agriculture officer act as the advisor. Various activities as well as classes were organised by this club for imparting knowledge to the farmers.

The technical architecture of the project is as follows



**Figure 4-2** Technical architecture e Krishi (Krishnan & Varghese, 2014)

each Akshaya Centre is given Rs 10/- for registration of one farmer in the system with all his details. No further stream of income is defined in the project which finally affected the sustainability of the project. The farmers are not allowed to trade independently even if they do have internet connection. They need to come to Akshaya Centres to register their produce for selling.

The Project was able to register around 40,000 farmers and also 400 buyers in Malappuram district alone. The farmers experienced benefit through information provided through the system but also expressed that they need the support of other extension agencies for the full utilization of the information received by them. The agriculture produces which was registered in the portal for selling also was not fully

sold due to the lack of buyers. The demand was also raised by the farmers that the portal need to be translated to their local language i.e. Malayalam. Once external fund from UNDP had stopped, the project faced sustainability issue as revenue generation opportunities were not properly tapped in the initial phases.

In an NISG study on the project, following key lessons were noted from the project.

- Pilot phase was effective and benefited to the stake holders
- The project has been rolled to seven districts in the state but not materialized as envisaged.: In many projects when a successful pilot implantation is up scaled it fails to achieve its aims. Co-operation of stakeholders are not visible when project are rolled out state wide or nation wide.
- Technology frame was not familiar to grass root level users: Language preference of the farmers were not taken into consideration.
- Participation of Local Self Government Institutions(LSGIs): Agriculture is one the main subjects under LSGIs but many panchayats do not take interest in agricultural extension activities.
- Inter -department co ordination is pivotal: The project has not specified the role of department of agriculture which is the line department. Essentially in the absence of that, the project ran as IT project under KSITM.
- Appropriate Knowledge about rural markets and linkages: A knowledge about local characteristics of the linkages is required.
- Sustainability: Any project needs to build on a sustainable model for the success in long run.

Thus the project faced multiple issues when it was rolled out in multiple districts. After initial success during the pilot phase, project slowly fell into oblivion.

## **4.8 Farmers Portal**

To cater to the information needs of the farmers, Government of India has launched a farmers Portal. The information available in the web about agriculture

is spread across hundreds of website/portals in India even in government sector. A farmer or any other stakeholder searching for a particular information needs to scan all this portals which is practically not possible. To address this issue Department of Agriculture has launched this portal as a one stop shop for all agriculture needs.

It is envisaged to make available relevant information and services to the farming community and private sector through the use of information and communication technologies, to supplement the existing delivery channel. It is supposed to cater to all the informational needs relating to Agriculture, Animal Husbandry and Fisheries sectors production, sale/storage of an Indian farmer. While browsing the Farmers' Portal, a farmer is able to get all relevant information on specific subjects around his village/block /district or state. These levels can be easily reached through the Map of India placed on the Home page. Currently only Hindi and English versions are available. The delivery channels in addition to the web portal is also seems to be not fully operational limiting the use of this portal. As the huge information available in this portal needs continuous updation to keep the portal current, the website need to integrate to other similar portals for automatic updation of information. Some of the links of this portal were also not functional indicating the huge work still to be done under this project (Department of Agriculture,Cooperation and Farmer Welfare, 2017d).

Various initiatives from Central and State Government were successful to some extent in using the telecommunication network for the information dissemination to the farmers. But this efforts were mostly in silos and during upscaling they were not successful in delivering results in some cases. The Gol projects mKisan and Kisan Call Centre were not taken up in this chapter as detailed information of these projects is given in later chapters. In short while efforts are on for the use of ICT and Telecommunication Network in public extension networks, there is no visible advantages for the farmers except in some select areas and there is a long way to go for fully utilizing the capability of these technologies for the farming community.