Case Study

AGRISNET - Information Network for Farmers

March 2011

Governance Knowledge Centre

Promoted by Department of Administrative Reforms and Public Grievances
Ministry of Personnel, Public Grievances and Pensions, Government of India
http://indiagovernance.gov.in/

Researched and Documented by

oneworld.net
OneWorld Foundation India
www.oneworld.net.in
owsa@oneworld.net

Table of Contents

Executive Summary

The Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India has taken measures to promote the use of technology to enhance the agricultural sector. In this regard, various technology promotion schemes have been introduced by the government under the Tenth Five-Year Plan. Agriculture Resources Information System Network (AGRISNET) is one such mission mode project envisaged to be a comprehensive knowledge portal to disseminate relevant information to farmers. The goal is to follow an all-inclusive approach in terms of ensuring technological connectivity, development of system software and provision of hardware at agriculture department offices up to the block level in all States and Union Territories.

Various states have implemented AGRISNET, but this best practice documentation highlights the state of Tamil Nadu for its success achieved in a short period of time. By leveraging existing resources, the Department of Agriculture was able to overcome the financial and technological complexities of implementing the project. Funds from multiple government schemes were used to set up basic infrastructure in agricultural offices. A separate technical team of officers was also established to avoid bureaucratic delays.
Despite a large proportion of farmers with low literacy levels and minimal IT skills, 33 percent of 80 lakh farmers in the State are using the content available on the portal. The government has been able to accomplish this by following an inclusive and demand based approach.

Background

AGRISNET was launched in Tamil Nadu on July 29, 2010 through a collaborative effort by various stakeholders. Under this centrally sponsored scheme, state governments can independently determine the outputs and deliverables for AGRISNET for G2C services offered through the portal. The objective is to offer needs-based and localised information to farmers through the web. The overall mission of the project is to create technical agricultural awareness amongst farming communities. It aims to be "a system for reliable and faster information retrieval, anytime in relation to cropping or crop cultivation."

The project in Tamil Nadu has been successfully implemented within a year of conceptualisation largely because of resource convergence. The state ensured that there was access to sufficient hardware as well as connectivity to link agricultural offices. This required a considerable amount of funding, and financial limitations forced the government to take a creative approach. The initial proposed cost of the project was 8.31 crores; however, only 3.02crore was released by the Government of India in Phase I. As a result, the agriculture

department decided to utilise funding from three other government schemes: the Agriculture Technology Management Agency, National Agricultural Development Programme and AGRISNET.

The website, as it functions today, is a powerful information tool for government and farmers. Relevant information is gathered through block level offices/Agriculture Extension Centres and used for planning and monitoring. Information is additionally used for external information provision; for example, giving farmers alerts about weather conditions. Agriculture department offices are in 30 districts; 385 of the block extension centres have been computerised and provided with a web connection.

Objectives

The Agriculture Department in Tamil Nadu determined the following goals for AGRISNET:

- Encourage farmers to seek answers through the web rather than physically travel to offices for information required
- Provide historical data for micro level planning
- Create learning opportunities
- Provide an efficient and accurate forecasting mechanism
- Provide information on market trends for farmers to analyze
- Provide a user-friendly and conducive discursive platform
- Offer agricultural extension services (i.e. marketing) to ensure farmer long-term security

Working Design

AGRISNET has two major components: first, it is a user-friendly frontend portal that can be accessed through the web by relevant stakeholders and second, it has backend linkages that ensure efficient information processing. While the Department of Agriculture is the key implementing agency, Electronics Corporation of Tamil Nadu (ELCOT) and PERI India are responsible for operative aspects of procuring hardware and developing software, respectively.

Technology

Hardware

Although the project's scope is to cover the entire state, the Government of India recommended implementing the project first in districts covered under the Agricultural Technology

Management Agency (ATMA) programme, as availability of computers and basic infrastructure was ensured in these areas. Since the aim of the Tamil Nadu government was to be computerised all agriculture offices but only nine ATMA offices were computerised, the agriculture department leveraged funds from other government initiatives such as the E-Extension scheme under the National Agricultural Development Programme. This approach allowed for the installation of hardware in all 30 districts headquarters and 383 blocks. At present, each agriculture block headquarters is equipped with two computers - one provided by agriculture department and one by horticulture department.

Connectivity

The state of Tamil Nadu, under National e Governance Plan, has established a state-wide network known as TNSWAN, to provide vertical connectivity between a department's state headquarters, district headquarters and block headquarters. The Department of Agriculture has used this network to create its own linkages, and in addition, develop horizontal linkages between departments in 47 offices. The remainder of departmental connectivity was established through BSNL broadband for 363 block offices.

Software

Designing, developing and maintaining the portal is fundamental to the existence of the project. The software programme includes the AGRISNET website and various application modules. The modules were developed after the main portal was deployed, as per a thorough analysis of the requirements at the ground level. The initial five modules that were identified for the portal included Seeds, Soil Health, Fertiliser, Crop Coverage and Plant Protection. These were prioritised based on the experience of departmental field offices which farmers frequently visited to discuss their problems with experts. Through these interactions, officers recognised that good quality seeds, fertilizer and soil are critical components of higher crop yield.

ELCOT is the head of technology for the project. In mid-2009, it awarded a 5 lakh contract for software development to PERI India. The integrated web portal was executed in a phased manner: Phase I included creation of the website, and development, customisation

and deployment of five prioritised modules; Phase II extended the provision to eight new modules including weather, soil fertility index, and information on government schemes. There are also plans to send SMS based updates from the department on weather and

seed availability.

Information processing

As mentioned, the portal was developed and has been managed by PERI since January 2010; however backend information gathering and processing is carried out at various levels. The primary actors in data collection are the Department of Agriculture and Tamil Nadu Agricultural University.

1. Department of Agriculture

The Department of Agriculture has a state, district and block headquarters. The block level, usually responsible for data collection, is run by the Assistant Director of Agriculture, one Agricultural Officer, one Deputy Agricultural Officer, one Assistant Seed Officer, and 5 to 6 Assistant Agricultural Officers in the extension wing. Information regarding the crop coverage, yield monitoring, and soil fertility is collected at the village level by Assistant Agricultural Officer. This information is then entered into a central database that can be accessed by the appropriate authorities to compile reports that assist in planning and monitoring of agricultural programmes in the state. Furthermore, the agricultural information reflected on the AGRISNET portal is based on these inputs stored in the database. More than 500 backend users input data on a daily basis to generate daily updates and reports from the portal.

2. Tamil Nadu Agricultural University

Tamil Nadu Agricultural University (TNAU), as an educational and research institute, provides expert advice on agricultural issues. It is involved in the AGRISNET project through its AGRITECH Portal, also created for improving the lives of farmers through ICT. Information for two important application modules, weather and market price, for AGRISNET is supported by the university resources.

TNAU's Weather Network has an automatic weather record station in each block to capture relevant information for farmers. It records essential parameters for farming including the temperature, humidity, rainfall and wind speed. In addition, the Domestic and Export Market Intelligence Cell (DEMIC) forecasts price of commodities in Tamil Nadu, which is used in providing market prices to farmers through the portal.

Information Flow for AGRISNET Portal

Information Dissemination

Critical to the project's success is the assurance of easy access to accurate information by the beneficiaries. The portal was originally designed for farmers to directly access information but given the lack of penetration of computers at the village level, coupled with the prevalence of illiteracy, the majority of farmers seek help from the Agriculture Extension Centre to get relevant updates.

Farmers are made aware of the portal by Agriculture Department's field officer who makes frequent trips to the village. Information is then passed to other farmers through word of mouth. Thirty percent of 80 lakhs farmers in the state access the website with the help of the agriculture extension centre. However, approximately 3 percent of farmers are progressive and access the information directly through the website.

Information Currently Available on the Portal

MARKET INFORMATION: The market information provided on the website is linked to India Development Gateway portal, from where daily updates on crop price can be determined.

RAINFALL: The website displays weather conditions for all blocks in the state as captured through 'Automatic Record Station'. Weather forecasting helps farmers to plan their harvest.

SOIL HEALTH CARD: The application is designed such that if a farmer enters the sample number of soil and crop, it will give the relevant details of its characteristics, water, biological properties. Based on this information, the agricultural officer can recommend the inputs to enhance the value of the soil.

VILLAGE LEVEL FERTILITY INDEX: Approximately 4500 villages mapped to the report can be used to study the nutrient value of the soil. Since farmers often approach the Agricultural Extension Centre for advice on fertilizer, the officers can now have data ready to recommend fertilizer input.

SEED AVAILABILITY: Through the portal, a farmer can get updates on availability of specific variety of seeds at government, private, quasi-government and consolidated agencies at the block level.

FERTILISER CALCULATOR: The data gathered through Soil Health Cards and Village Level Fertility Index (VLFI) is used to calculate fertiliser composition.

FERTILISER AVAILABILITY: Farmers can find details regarding the availability of fertilizer in the village

FERTILISER PRICE DETAILS: Daily price updates are displayed according to the fertilizer and manufacturer.

SCHEMES: AGRISNET provides information on various central and state government schemes.
TNAU AGRI PORTAL: Users can access the external website to get expert information on agriculture

Methodology

For purposes of this documentation, the Governance Knowledge Centre (GKC) research team carried out desk research to gather background information on the project. The Tamil Nadu AGRISNET website was used to identify the various software modules developed for the project.
To fill the gaps in information, researchers interviewed the Additional Director of Agriculture, and an Agricultural Officer at the Commissionerate of Agriculture, Tamil Nadu.

Key Stakeholders

- DEPARTMENT OF AGRICULTURE, GOVERNMENT OF INDIA: AGRISNET is a centrally sponsored scheme. Key deliverables were identified by the Department of Agriculture Cooperation, Government of India.

- DEPARTMENT OF AGRICULTURE, GOVERNMENT OF TAMIL NADU: Implementing agency for the project in the state

- NATIONAL INFORMATICS CENTRE: The portal is hosted on an NIC server. NIC also offers advice on the technology enhancements planned for AGRISNET.

- ELECTRONIC CORPORATION OF TAMIL NADU: ELCOT offers expertise in technology

- PERI INDIA: The AGRISNET Portal was developed and is managed by PERI since January 2010. They are also responsible for training of nodal officers of Agricultural Department in open source technologies.

- TAMIL NADU AGRICULTURAL UNIVERSITY: Responsible for providing technical information and advice on agriculture through the portal

- DIRECTORATE OF AGRICULTURAL MARKETING: OVERSEER OF 153 MARKETPLACES IN TAMIL NADU

Lessons Learned

The Tamil Nadu AGRISNET portal caters to 80 lakh farmers, providing them with information on agriculture related information, including availability of seeds and fertilisers across 27,000 dealers and distributors in the state. Thus far, 33 percent of the farmers have utilised the services offered through AGRISNET, and this has been achieved within a year of launching the portal. Additionally noteworthy are the G2G services that have been incorporated into the back-end network. The government uses this feature to generate customisable reports to improve their service delivery to farmers.

The following distinct features of this project can be replicated with AGRISNET portals in other states.

Resource Convergence

The success of the Tamil Nadu AGRISNET project can be partly attributed to the government's keen ability to identify available resources that could be converged to achieve desired objectives. For example, execution of the project plan required availability of computer hardware at the district and block levels, however the funding offered by the central government in Phase 1 of the project was not sufficient to procure these assets. As a result, the department decided not to delay the project for financial reasons and instead, to capitalise on funding available from other schemes with similar objectives.

Proactive Involvement of Government Stakeholders

The Department of Agriculture was proactively involved in planning and implementing of the project. After initial delays in examining the requirements of the project, the department formed a five member team to run it. These team members had the appropriate technical backgrounds for making timely and effective decisions. In addition, the IT Secretary and ELCOT were jointly involved in appraising the project in a way that would ensure that there were no bottlenecks in the administrative process. This included the approval of proposed actions by a state level committee.

Need Based Information

Instead of deluging the portal with information, the department first examined the requirements of the farmers and then only offered information that matched. The block level

officers interact with farmers on a daily basis, and hence, became aware of the information farmers sought out most. The Department considered these interactions to offer detailed information on the crucial components of seeds, soil, weather and fertiliser.

The portal was additionally made interactive to customise information provision. For example, the quality of soil is most important for productivity so multiple modules are developed to give information on soil and ancillary topics such as fertilisers, its availability and a calculator to know the required inputs. A farmer can provide the information or use a drop-down menu to locate his/her village to determine localised details.

Improved Planning and Monitoring

AGRISNET not only fulfils the vision of providing G2C services, it was also designed in such a way that it helps in aggregating data for improved planning at the state level. For instance

Increased Transparency

AGRISNET promotes transparency in public service delivery through the publication of details about the availability of seeds and fertilisers from various government stores across the state. It also offers credible and current information on market price of inputs, which otherwise farmers may not be able to access. In order to increase transparency, there are plans to publish the list of beneficiaries under various government schemes in the public domain.

Future Plans

Currently, the AGRISNET portal is being modified to incorporate additional interactive modules. The department is in the process of collecting farm-related information of all the farmers in the state to facilitate planning at the state level and to introduce customised SMS updates to farmers. So far, nearly 21 lakh farmers' details have already been collected by the government.

Furthermore, the licensing module has been introduced on the portal. The objective of this G2B service is to electronically issue and renew licenses for business entities that sell seeds and fertilisers in the state. In this way, small business can be promoted through convenient start-up processes.

Research was carried out by the OneWorld Foundation, Governance Knowledge Centre (GKC) team.
Documentation was created by Research Associate, ***Aryamala Prasad***
For further information, please contact Naimur Rahman, Director, OWFI.

References

- http://www.tnagrisnet.tn.gov.in/website/index.php
- http://agritech.tnau.ac.in/agriculture/agri_resourcemgt_soil.html
- http://agricoop.nic.in/PolicyIncentives/BRIEF%20NOTE%20ON%20AGRISNET.htm
- http://agris.nic.in/AgRISProjectproposal.pdf
- http://www.perisoftware.com/peri_india_news_room.html
- http://www.elcot.in/software_development.php

Appendix A – Interview Questionnaire

1. This project was initiated by the central government as a part of the Tenth Plan to be undertaken by all states across the country. When was did its implementation begin in Tamil Nadu? Tamil Nadu has received the award for best AGRISNET. What makes the project in Tamil Nadu unique or different from how it runs in other states?

2. Were there specific project requirements/deliverables from the central government? If so which of the following were a part of this? Any others?

Currently the TN website contains:

- Market Price Information Rainfall details
- Reservoir (is this mapping of reservoirs?)
- Soil Health Card (can farmers apply for cards online?)
- Village Level Fertility Index
- Seed Availability (is this real-time index of seed houses?)
- Fertilisers Availability (is this real-time availability?)
- Fertiliser Calculator
- Fertilisers Price Details (how are prices determined?)
- Schemes (is this online background information about agriculture-related schemes?)
- Licensing (is this online information about licensing? What sorts of licenses? Can farmers apply for license through the web?)

Can you explain each of these in further detail i.e. how they operate and contribute to the agriculture industry in Tamil Nadu? Does the website offer additional services? If so, please describe them.

3. What is the current scope of the project? Has it been implemented in all districts?

4. Who are the stakeholders apart from Central and State government? What are their roles and responsibilities?

5. Is there any kind of awareness programme to inform farmers about the initiative? If not, then how do farmers get to know about Agrisnet? If so, can you explain the effort?

6. As we understand, this programme aims to disseminate relevant information to the farmers. Could you please explain how the programme works in terms of information gathering and processing by the government?

a. There seems to be emphasis on use of electronic media to gather information. What kind of electronic media is being used in this project and how?

b. How often is information updated (In terms of market price, fertiliser availability etc.) and how is this process carried out (what software is used, is updation automatic)?

7. How do farmers access information? For instance, are there e-kiosks at local levels?

a. Is this project linked to Kisan Call Centres? If so, how? Why is this helpful?

b. The fertiliser calculator is designed in English. How do farmers use the application? Are there field officers who guide the farmers?

8. This is an ICT based project and the emphasis is on hardware and connectivity, kind of technology has been introduced because of this project?

a. Was the infrastructure already available at the block level? If not, then what kind of infrastructure was implemented? What are the financial implications of this?/ How much did this cost?

9. What are the major challenges of the project? For example, a certain level of literacy is critical to access information online. Was this a challenge while designing/implementing project?

10. What is the penetration level of the programme? What per cent of farmers use Agrisnet?

11. Is there a monitoring mechanism to understand the usage trends of the farmers? If so, can you provide us with information on these trends?

12. Is it possible to provide quantitative data that highlights the impact of the project on farmers in the state? Agriculture government officials?