



## “A CONCEPTUAL STUDY ON THE PROBLEMS AND PROSPECTS OF E-GOVERNANCE IN INDIAN AGRICULTURE SECTOR”

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### **ABSTRACT**

*Governments all over the world are trying to implement e-governance for strengthening interfaces with citizens. The complexities involved in the implementation of e-governance projects and low success rates of such projects suggest that e-governance is more of a managerial issue than the technological one. This paper focuses on problems and prospects of e-governance in Indian agriculture sector.*

**Key words:** e-governance, agriculture

### **Introduction -Agriculture and e-governance**

Agriculture plays an essential role in the process of economic development of less developed countries like India. Besides providing food to nation, agriculture releases labour, provides saving, contributes to market of industrial goods and earns foreign exchange. Agricultural development is an integral part of overall economic development. Agriculture and allied activities contribute over 23 per cent of country's gross domestic product. The sector is country's biggest employer accounting for around 60 per cent of aggregate employment. Growth performance of agriculture has important implications for overall growth of the Indian economy and alleviation of poverty among the rural poor (NCAER, 2005). The increasing economic integration of the Indian economy with global processes has brought considerable challenges to the agriculture sector. In the first place, a number of major crops have been witnessing a decline

in productivity growth. Secondly, Indian agriculture faces unfair competition from cheap imports, which pose an enormous threat to the livelihoods of the Indian farming community (Dhar and Kallummal, 2004) Realizing this, the Government of India has initiated a series of measures for ensuring competitiveness of Indian agricultural produce in the world market besides re-orienting agricultural production and marketing strategies with emphasis on enhancing the income levels of farmers. In addition to having an enabling environment, the Indian farmers need to be empowered with knowledge and sensitized to keep adapting to the changing situation. The National Agricultural Policy (NAP) envisions leveraging ICT in a big way for enhancing the competence level of farming community. Farmers need to be equipped with knowledge about pre- and post-harvest aspects of agriculture as per the requirements of emerging market driven economy. E-Governance in agriculture has been included as a mission mode project under the National e-Governance Plan (NeGP). Despite the proven catalytic potential of the ICT, the continued large proportion of resource-poor small and marginal farmers in our country, their low literacy levels, lack of required skills of the government functionaries operating at grassroots etc. are some of the indicators of the complexities involved in achieving the ambitious goal. E-Governance strategy for the agriculture sector has to keep into view the interplay of continuity and change forces for intended benefits to reach the masses. The following discussion dwells upon some of the continuity and change forces in the context of e-Governance for agriculture. The forces contributing to continuity are considered as agrarian base, resource poor farmers, federal constitution, culture, institutional framework, centralized planning and investment in technology. The change forces are: growing emphasis on decentralized planning, liberalization, globalization, agricultural reforms, and ICT induced opportunities.

ICT has brought about revolutionary changes in the conduct of business in several organizations particularly in agriculture sector. Recognizing the integrative and service delivery potential of the ICT, the Government of India is implementing a National e-governance Plan through its Department of Information Technology. The strategic objective of NeGP is to enable the government services to reach the common man. NeGP aims to achieve this through two of its Mission Mode Projects: establishment of the State Wide Area Networks (SWANs) and setting up of one lakh internet enabled Common Service Centres (CSCs) at strategic locations throughout the country. The necessary content backbone, for creating digital opportunities at grassroots, is being built under ambitious AGRISNET and AGMARKNET mission mode projects by the Ministry of Agriculture. These initiatives, together with reforms in agricultural marketing which

include amendment of APMC Act to permit e- 265 Adopting E-governance marketing, promotion of direct marketing, National Warehousing Receipt System, Grading and standardization facilities at the grassroots level, setting up of rural godowns and strengthening of marketing infrastructure are paving the way for the ICT enabled direct marketing of agricultural produce. It is expected that the ICT enabled commodity trade flows will be a reality in India in near future. The opportunities likely to be created with the large scale application of the ICT in the Indian agriculture sector have the potential of bringing unprecedented changes and is thus considered as another major change force. This paper tried to throw light on the role, issues and challenges of e-governance in the agriculture sector in India. Thus the paper divided into three sections. First section focuses on the role of E-governance. Second section dealt with issues and challenges and third section findings.

### **Section I**

E-governance, in simplest terms, refers to governance processes in which information and communication technologies (ICTs) play an active role in delivering governance-related products and services. When applied to the agricultural sector, e-governance refers to use of ICTs in delivering governance products and services which are of use to the agricultural community, including farmers, livestock breeders, herders, dairy workers, agriculture extension workers, traders, scientists, middlemen, and NGOs working in the agriculture sector.

#### **Governance products and services in the agriculture sector**

There are a range of interventions that are useful for the agrarian community. For instance, those aimed at increasing crop productivity, reducing crop damage due to weather and pests, improved livestock management, improved access to credit and government schemes, better market rates for farm products, providing food security, conservation of bio-diversity, reduce in use of chemicals, and access to better seed varieties and technology. These interventions can be provided through several governance products and services including: information about the latest seed varieties and technologies; accurate rainfall and weather prediction; timely access to various government schemes such as those on water resources management and subsidies on land development and soil conservation activities; information about local agriculture offices and officers, crop testing and training centres; information on milk processing, grain storage,

livestock vaccination and crop diseases; information about market prices of various crops, government procurement prices, rates for loans, and available credit facilities.

Apart from these, farmers often need legal documents certifying their ownership of land and livestock, which is useful purchasing or selling land and cattle. They also need access to government forms to apply for government schemes, loans and subsidies, for getting electricity on their farms, for digging new wells, diverting canal water for irrigation, and getting reimbursement for livestock eaten by wild animals. For instance, in most of Sub-Saharan Africa, over 90 percent of farmers are small, farming less than 5 hectares of land. For such households, the safety net lies in good governance to ensure that required agricultural products and services get delivered to them in a timely and efficient manner. Consequently, national and state governments, NGOs and donor agencies should give high priority to ensure good governance within the agricultural sector.

### **1.1 Application of e-governance models in agricultural sector**

Effective electronic governance models in the agricultural sector are those which are based on the **farmer-centric approach**. The approach should be on identifying the different needs of the agrarian community, specifically which governance related products and services are most useful for them, and are currently underprovided. Electronic governance applications which focus on providing such governance products and services would be popular, effective, and may even generate returns over the investment. On the contrary, electronic governance applications which are not farmer-centric, may be costlier and fail to justify the investment made on them. For instance, creating a simple electronic governance application which updates the farmer about latest seed varieties and how to tackle crop diseases may be more beneficial than making annual reports of agriculture ministry online on their websites (and which is often the case when one browses the website of any of the government agricultural departments).

Electronic Governance models should try to increase the **public value of information** being provided. This means that they should not try to target the same sections of the society, or focus on providing the same information through different channels. Instead the success of electronic governance, as with agricultural crops, lies in promoting diversity of electronic governance models and applications rather than on uniformity. This is because even within the agrarian community the needs of end-users may be very different. A small farmer, who practices

sustenance agriculture, may find it more useful to get information on government subsidies on land improvement, rather than on receiving updated market price of crops. Similarly a livestock breeder would find electronic governance application which allows him to explore new marketing opportunities more useful than being able to access copies of land records online. Diverse electronic governance models bring more number of people into governance sphere and thereby increase the "public value" of information being supplied to the agrarian community.

In short, electronic governance models have to be designed to provide governance information which is of "value" for the agrarian community, instead of providing information that can be readily supplied by the agriculture ministries and offices.

## **1.2 The Role of Electronic Governance in the Agricultural Sector**

ICTs can be applied in the agricultural sector to provide many of the products and services listed in the previous section. And there are several projects: funded by national governments and donor agencies, private sector or entrepreneurs which demonstrate the useful role ICTs can play in the agricultural sector. However for these projects to be meaningful beyond their immediate objectives (for instance of providing a specific product or service), ICTs should be used to bring deeper and significant changes in the governance sphere which surrounds the agrarian community. A clear mandate emerges for e-governance for the agricultural sector aimed at bringing 4 key changes:

### **1. Improve the quality and standards of existing agriculture related governance products and services being provided**

This could include improving existing agricultural extension services through use of IT tools, opening new communication channels by which information about market prices and government procurement prices can reach farmers, or providing updated information about local agriculture offices and the services provided by them.

### **2. Provide new agricultural governance services and products to the citizens/users which are needed but have not been provided so far**

This could include providing opportunities to farmers to access and modify their land records data accurately, providing credit cards to farmers to be used for purchasing of seeds, fertilizers and farm equipments, or installing community based equipment which could update the farmers

about rainfall prediction, about prevalent crop diseases, or movements of wild animals in the area.

### **3. Enhance the participation of agrarian community in deciding what governance products and services should be provided and in what manner**

This could include building capacities of farmers to decide how agriculture related government funds should be spent in their village, for instance on repairing the lining of canals or restoring of rain harvesting structures. They should be able to influence government decisions on the appropriate location of check dam construction, deciding who should qualify for farm subsidies, and the kind of courses offered by the local agriculture training centres.

### **4. Bring new sections of the agrarian community under the governance sphere**

This includes bringing new section of agrarian community within the governance sphere, and namely those who are more likeable to remain excluded: landless farmers, migrant labourers, women farmers, old farmers and tribal communities.

Only when efforts are made to meet the above four conditions, can good governance become a reality for all sections of the agrarian community, and can ensure a healthy growth of the agricultural sector and improvement in the welfare of households which are dependent on it for their livelihoods.

Thus the role of electronic governance in agriculture sector goes beyond important, but singular applications, such as digitizing of government records, making available government forms online, grievance-redressal system, or putting computers in agriculture training centres. Instead electronic governance becomes a tool for providing agriculture related governance products and services more effectively and uniformly to the entire agrarian community.

## **Section II**

This section dealt with the problems and prospects of e-governance in Indian Agriculture sector. ICT for agriculture, ICT for governance holds incredible potential and has already proved successful in many countries. Governance—defined by the World Bank as the “traditions and institutions by which authority in a country are exercised for the common good” (World Bank n.d.)—is a vital component of rural development. How governments, civil society groups, and

nongovernmental organizations (NGOs) offer their services in rural areas determines the quality of life for community members, including the extent to which improvements in agriculture raise farmers' incomes and reduce poverty. "Good governance"—which is participatory, consensus-oriented, effective and efficient, accountable and responsive, transparent, inclusive, and follows the rule of law (ESCAP 2011)

## **2.1 Problems of e-governance in Indian agriculture sector**

The most difficult problem faced by India is to provide in unconnected and remote areas. It requires active citizen participation, government attentiveness, functioning accountability mechanisms, and the financial means to fulfill public demands. Yet the expansive reach of ICT has made the provision of good governance more possible. Some of the earliest e-governance (electronic governance) initiatives began around the mid-1990s. With Internet as the principal device (in which information would eventually be disseminated through other mobile tools), governments in developed countries began establishing technological windows of information and public services. As broadband Internet became more affordable and widespread, poorer countries tapped into this type of electronic government. Innovative approaches to offering electronic services both in the agricultural and public service sectors as well as for the private sector are on the rise in Asia, Latin America, and even Africa. Mobile phones, radio, geographic information systems (GIS), and other ICT expand government capacity to reach out, target, and provide appropriate services to rural communities. Beyond service provision, governments, civil society groups, and development institutions are now increasing rural public participation through electronic means.

## **2.2 Prospects of e-governance in Indian agriculture sector**

The Department of Agriculture and Cooperation (DAC), Ministry of Agriculture has decided to implement National e-Governance Programme (NeGP) in the Agricultural Sector as a Mission Mode Project (A-MMP), covering the Agriculture sector, Livestock sector and Fisheries sector. The A-MMP aims to address the needs of the farming community and its other related stakeholders, through provision of relevant information and services through the various delivery channels available in their vicinity for assisting them in making rational decision. The objectives of the mission are: Bridging farmer centricity and service orientation to the programs Enhancing reach and impact of extension services Improving access of farmers to information and services

throughout crop-cycle Building-upon, enhancing and integrating the existing ICT initiatives of Centre, and States Enhancing efficiency and effectiveness of programs through process redesign More effective management of schemes of DAC Promoting a common framework across states The states. The states are considered, as pilot in the scheme are Assam, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Karnataka and Kerala. These pilot states will implement with a definite scope defined in the project – there should be a centralised Agriculture portal supported and connected with state level Agricultural portals and providing about 12 information services which are defined in it. These services are clustered into 12 categories for better management and implementation of services to the needy farmers across the country. Such categories are: Information on pesticides, fertilisers and seeds, Information soil health, Information on crops, farm machinery and, training and Good Agricultural Practices (GAPs), Information on forecasted weather and agro-met advisory, Information on prices, arrivals, procurement points, and providing interaction platform, Electronic certification for exports and imports, Information on marketing infrastructure, Monitoring implementation/evaluation of schemes and programs, Information on fisheries, Information on irrigation infrastructure, Drought relief and management, Livestock management, The services are planned and start implementing under these categories are in various states. The basic needs of each farmer-centric are considered as a service which are listed below:

Service-1: Providing information on quality pesticides

Service-2: Providing information on quality fertilisers

Service-3: Providing information on quality seeds

Service-4: Providing information on soil health

Service-5: Providing information on crop diseases

Service-6: Providing information on forecasted weather and Agro-met advisories

Service-7: Providing market information on prices and arrivals of Agricultural commodities

Service-8: Providing related market information to facilitate farmers gets better prices

Service-9: Providing interaction platform for producers, buyers and transport service providers

Service-10: Providing information on minimum support price and government procurement points

Service-11: Providing electronic certification of imports and exports

Service-12: Providing information on marketing infrastructure and post harvest facilities

Service-13: Providing information on storage infrastructure

Service-14: Monitor the implementation of schemes/programs

Service-15: Providing information on training support to farm schools for adoption of good agricultural practices

Service-16: Sharing good agricultural practices with farmers and trainers and providing extension support through online video

Service-17: Providing information on fisheries

Service-18: Providing information on irrigation infrastructure

The central and state agriculture portals form the part of it to provide services to farmers under e-Governance plan. These two portals are integrated with AGRISNET of each state for knowledge dissemination to farmers in language sensitive way. The delivery of services is spread across various mediums to reach to the needy farmers across the villages. These delivery devices include CSCs, KCC, SCC, Private Kiosks, Mass Medias, Department, Agri-clinics, Display boards etc.

### **AGRISNET (Agricultural Information System Network)**

A Mission Mode Project for Agriculture Department of each state specific concerned. Government of India, Department of Agriculture & Co-operation (DAC), Ministry of Agriculture has decided to launch a Central Sector Scheme titled, 'Strengthening / Promoting Agricultural Informatics & Communications' of which one component is AGRISNET. The objective of AGRISNET (Agricultural Information System Network) Project is to create a sustainable data bank of all Agricultural Inputs in the State concerned containing entries for all relevant information pertaining to Agriculture and its related activities and to access the same through a secured Network. Objective of the Project is to network all Agricultural Offices up to

Block level with State Department of Agriculture for improving information access and to provide advisory services to the farming community through use of ICT. Under AGRISNET project (A Mission Mode Project under National e-Governance Plan), the offices of Agriculture Department including the District/SubDivision/Block level offices will be connected through a Network based on State-SWAN / NICNET. The services provided through are: G2C, G2B, G2G and G2E. Expected impact of the project on e-Governance scenario at national/State level include:

1. Improved information access and effective delivery of services to the farming community
2. Establishing Agriculture on-line services across Faster and efficient redressal service to farmers' grievances
3. Efficient and improved communication system among all the offices of the department
4. Use of e-mails services across the department
5. Improved transparency and accountability of the department
6. Direct feedback from farming community to the decision makers
7. Better monitoring of government schemes, which directly impact on farmers
8. Efficient management (development, conservation, allocation and utilization) of resources
9. Improved productivity and profitability of farmers through better advisory systems
10. Efficient and increased utilization of information by stakeholders for their decision making
11. Foundation for development of e-business in Agriculture
12. Better organizational efficiency and productivity

## **Section III**

### **Findings and conclusions**

#### **3.1 Findings**

Twenty years ago, India faced tremendous challenges when it set on its journey. The PC revolution was yet to encompass the country, the telecom infrastructure was low and there was virtually no indigenous software or hardware development to talk about. The ICT industry, at a very nascent stage, appeared far behind its Western counterpart. Today, in 2008, the scenario has

undergone an amazing transformation. The Indian ICT Industry in particular the IT software and services and ITES (IT Enabled Services) sectors, have not only managed to catch up with their more technology savvy global leaders, but they are also being actively sought by companies worldwide for their onsite, offshore expertise and wealth of manpower resources. Indian ICT organizations are now counted among the well known and reputed ICT solutions and services providers across the world and scores of global ICT leaders have invested in India, making the country their hub for software development, offshore outsourcing and R&D. The Use of Personal Computers has tremendously increased from 5.4 million PCs in 2001 to 14.5 million in 2005. In 2005, only one in every hundred persons had a personal computer, which was much less compared with any developed country. Internet Users per 100 populations Though we have a rapid positive trend for this indicator, compared to the developed countries, we are still at the infant stage. However, every 35th person is using Internet in India. The Government vision is to use Information Technology as a tool for raising the living standards of the common man and enriching their lives. Towards this end an ambitious programme of PC and Internet penetration to the rural and under-served urban areas has been taken up. The Department of Information Technology has initiated a programme of 34 establish State Wide Area Network (SWAN) upto the block level with a minimum Bandwidth of 2 MBPS to provide reliable backbone connectivity for E-Governance. The National Policy of the government recognizes the potential of E-Governance not only to improve governance but also to facilitate people's access to government services.

### **3.2 Conclusion**

In summary, there are number of governance products and services which are specific to the agricultural community and which should be made available to them. These services are of even more significance for agrarian community in developing countries where good agricultural production is essential to ensure household food security and provide livelihoods to agricultural workers. For most of these agrarian households, income from crop and livestock is the sole source of livelihood and governance services aimed on their needs has a direct impact on household as well as community welfare.

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