

**CHALLENGES OF AGRICULTURAL EXTENSION SYSTEM IN  
INDIA: REVIEW AND A VIEW**

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**ABSTRACT**

*Indian agriculture faces serious challenges because of ever-increasing population, limited land and water availability and degradation of natural resources. The national average yields of most commodities are low. In many areas there are limits to achievable increase in productivity, unless appropriate institutions that can help farmers to access information, inputs and services are strengthened, and joint action for natural resources management, marketing and processing are promoted. New opportunities (and threats) for trade in international markets have also added a new challenge for Indian farmers.*

*A wider definition of agricultural extension, beyond improving crop productivity, has not been embraced. Information flow is supply-driven and not needs-based or area-specific (Raabe 2008), so farmers see the quality of the information provided by the public extension staff as a major shortcoming. Despite the renewed interest and investment in agricultural extension in India, the coverage of such services is inadequate. Government extension programs, extension services of the national agricultural research system, cooperatives, and nongovernmental extension programs have a very limited outreach.*

*Therefore, there is a need to re-examine the current agricultural extension approaches in India to understand where information gaps exist and determine why farmers are not accessing information through the large, well-established public-sector extension system in addition to emerging private and third-sector actors.*

**Key Words:** Extension, Extension Systems, Approaches to Extension

India is a vast country with marked regional diversities in agro-climatic environment, resource endowment and population density. Agriculture (including cropping, animal husbandry, forestry and agro-forestry, fisheries and agro-industries) currently accounts for 24.7 % of the national gross domestic product (GDP) and provides employment to about 57%

of the total work force. 78% of the land holdings are small (less than two hectares) and in 1991, they commanded only 33% of the total net-cropped area. Though the four fold increase in food grain production (mainly from irrigated regions) during the last four decades improved the per capita availability of food, 26.1% of the population were living below the poverty line in 1999-00. Poverty in India remains predominantly rural; three out of every four poor persons live in rural areas. Agricultural growth would continue to be an important strategy for increasing rural incomes.

Indian agriculture faces serious challenges because of ever-increasing population, limited land and water availability and degradation of natural resources. The national average yields of most commodities are low. In many areas there are limits to achievable increase in productivity, unless appropriate institutions that can help farmers to access information, inputs and services are strengthened, and joint action for natural resources management, marketing and processing are promoted. New opportunities (and threats) for trade in international markets have also added a new challenge for Indian farmers. Agricultural extension services (in the public as well as private sector) need to play a much larger role in assisting farmers in meeting the above challenges.

### **Present Extension Scenario**

In India agriculture is a state subject and the main extension agency is the state Department of Agriculture (DoA). Most of the states have a separate wing (under DoA) or a Department for Horticulture, Soil and Water Conservation and Watershed Development. Among the various line departments, DoA has the maximum number of field staff for extension. The Department of Agriculture and Co-operation of the central Ministry of Agriculture has a separate Division of Extension. Extension Division lays down major policy guidelines on extension matters and the Directorate of Extension implements specific programmes and activities. The 1980s saw most of the states embracing the World Bank funded Training and Visit (T&V) system of extension. With external support drying up, the states began to dilute the rigour of T & V system and the 90's saw many states experimenting with new extension approaches. Currently a number of organisations are providing extension services. This include, State Agricultural Universities (SAUs); Commodity Boards (spices, rubber, coconut, coffee etc); Krishi Vigyan Kendras (KVKs); non-governmental (voluntary) organisations (NGOs); agri-business companies (dealing with seed, fertiliser, pesticides, farm machinery); media firms (print and video), etc.

Approaches to agricultural extension in India and worldwide continue to evolve. Since the Green Revolution in the 1970s and 1980s and the acknowledged unsustainability of the training and visit (T&V) program (Anderson, Feder, and Ganguly 2006; Moore 1984), agricultural extension, with its focus on increasing production via technology transfer, has adopted decentralized, participatory, and demand-driven approaches in which accountability is geared toward the users (Birner et al. 2006; Birner and Anderson 2007; Davis 2008; Hall et al. 2000; Kokate et al. 2009; Sulaiman and Hall 2008; Swanson 2009). While the call for demand-driven agricultural extension has existed for several decades now, new modes of reaching out to farmers could have significant impact in India, as they might better reflect the local information needs of farmers. The diverse nature of the Indian subcontinent, with its wide variety of agroclimatic regions and broad range of socioeconomic conditions in the rural population, calls for agricultural extension approaches that are context- and situation specific. With more than 81 percent of Indian farmers cultivating an area of 2 hectares or less (India, Directorate of Economics and Statistics 2009; NSSO 2006), there is an increasing need for stronger intermediaries that can facilitate information access for diverse smallholder farmers. Further progress in poverty and hunger reduction crucially depends on the increased productivity and profitability of these farmers, which in turn depends on the successful delivery of agricultural extension.

### **Challenges of Extension System**

Several emerging challenges confront Indian farmers. These include limited land and water availability, which is further exacerbated by degradation of natural resources; climate changes; changes in demand and consumption patterns, moving toward high-value agriculture; increasing population pressure; and liberalization of trade (Lele et al. 2010). Recent global food price increases and high levels of inflation have provided an opportunity to increase farmers' profitability. However, to realize the benefit of higher prices, farmers need to access a wider range of information, related not only to production technologies but also to postharvest processes, access to remunerative markets, price information, and business development (Sulaiman and van den Ban 2003). This information could be integrated with services that support the use of the information. For example, technology information needs to be supported with information about reliable sources for that technology, and where credit can be accessed.

In India, the role of agricultural extension in improving agricultural growth is today being recognized with increasing investment. India's 10th and 11th five-year plans emphasize agricultural extension as a key to increasing agricultural growth by reducing the yield gap in farmer fields, and therefore stress the need to strengthen agricultural extension in India (Planning Commission 2001, 2005, 2006).

However, despite the renewed interest and investment in agricultural extension in India, the coverage of such services is inadequate. Government extension programs, extension services of the national agricultural research system, cooperatives, and nongovernmental extension programs have a very limited outreach (NSSO 2005). The 2003 National Sample Survey Organisation (NSSO) survey showed that 60 percent of farmers had not accessed any source of information on modern technology to assist in their farming practices in the past year. Of those who had sourced information, 16 percent received it from other progressive farmers, followed by input dealers. Of those farmers who had accessed information, the major problem of extension services was found to be the practical relevance of the advice (NSSO 2005). The coverage and relevance of information provided to farmers through the agricultural extension system is therefore questionable. While this may be partly due to inadequate contact by the services, which need to reach a large and complex farming community, inappropriate or poor-quality information could also be a key hindrance to farmers' use of extension services. In other words, the content of the information provided by agricultural extension approaches, and the information farmers actually need, may not be aligned. There is therefore a need to re-examine the current agricultural extension approaches in India to understand where information gaps exist and determine why farmers are not accessing information through the large, well-established public-sector extension system in addition to emerging private and third-sector actors

### **Challenges and Constraints to Agricultural Extension Approaches**

It is still not understood in the literature why marginal and smallholder farmers do not access information more frequently. Whether it is because the information is not available or not relevant or there is no incentive to access information is still unknown. Another possibility is that these farmers do not have the means to use the information. If this is the case, information that is supported by services and inputs could be highly relevant. There are some specific challenges why these problems occur in various sectors.

### **Public Sector**

Information flow within the public sector moves linearly, with content focusing on the transfer of technology for increasing crop production. A wider definition of agricultural extension, beyond improving crop productivity, has not been embraced. Information flow is supply-driven and not needs-based or area-specific (Raabe 2008), so farmers see the quality of the information provided by the public extension staff as a major shortcoming (NSSO 2005). This is due to the static and inflexible nature of the organization, where a top-down hierarchical approach continues (Hall et al. 2000; Raabe 2008). Access to extension is also an issue, because of the low level of outreach by public extension services. This is partly due to the public staff being overburdened with implementing state and centralized schemes, which are also not easily modified to suit local needs and conditions (Sulaiman 2003b; Sulaiman, Hall, and Suresh 2005). There are also insufficient funds for operational costs, training, and capacity development, which limits the activities and continual development of the extension staff (Sulaiman, Hall, and Suresh 2005; Swanson 2006). Of the required 1.3 million to 1.5 million extension personnel required, there are only about 100,000 on the job (Working Group on Agricultural Extension 2007).

At the state level, the various line departments have been criticized for working in isolation, with weak linkages and rare partnerships (Sulaiman, Hall, and Suresh 2005), which limits information flow. Additionally the research–extension link has been criticized for not absorbing or using feedback from farmers and extension staff. Extension personnel and farmers are passive actors, and scientists have limited exposure to field realities (Reddy et al. 2006). The various components of the public-sector extension system suffer from duplication of programs, without convergence. While ATMA is pushed as the platform through which the multiple agencies can converge, the implementation difficulties are proving too great for effective integration, with shortages of both personnel and funds (Working Group on Agricultural Extension 2007). The 2010 revision of ATMA attempts to address this (India, Department of Agriculture and Cooperation 2010), but enabling the new personnel to achieve the necessary understanding of the concept for proper implementation will require strong training and capacity development.

### **Private Sector**

Private-sector examples in agricultural extension are developing context-specific models and using ICT tools to bring information directly to the farmer. The private sector is increasingly playing a role in extension services in India. The public sector acknowledges

this, with the policy framework for agricultural extension referring to the need for public extension services not to crowd out private services (India, Department of Agriculture and Cooperation 2000). Additionally, the policy framework for agricultural extension notes that “public extension by itself cannot meet the specific needs of various regions and different classes of farmers” (India, Department of Agriculture and Cooperation 2000). One alternative discussed in pluralistic extension systems is that the private sector can provide services related to proprietary goods, while the public sector can provide extension services related to public goods, which tend not to be addressed by private-sector firms (Swanson 2008).

Although few empirical studies have been carried out, the performance of private extension is said to vary widely; it tends to focus its services on areas with sufficient resources and is limited to a few crops and areas where profits can be assured (Sulaiman and van den Ban 2003). This has already been suggested in the discussion of the e-Choupal initiative, which services larger villages and specific crops. Additionally, the private sector serves a corporate interest, working with individual farmers, so social capital is not built. Moreover, private extension can only work well if farmers are willing and able to pay. One option suggested by Swanson (2008) is that the private sector could serve the needs of medium-size and commercial farmers, while the public sector could work in remote areas, which are currently not serviced well. This sort of system would require public-private partnerships that currently do not exist in India. It would mean changes in the way the public sector views and interacts with the private sector. Relying on the public sector may also be difficult for remote and resource-poor farmers, considering the existing problems and poor reach of the public sector in those areas.

### **Third Sector**

Within the information value chain, the capacity of farmers to articulate their needs will influence their ability to obtain the information they need. Considering the large number of marginal and small land holdings in India, Farmers’ Based Organizations (FBOs) and Self Help Groups (SHGs) could play important roles in articulating the needs of farmers to knowledge intermediaries. FBOs and SHGs can operate side by side with either NGOs or the public sector, but challenges exist in both sectors. Public capacity to build FBOs and SHGs is limited, while NGOs, which are not numerous, rely on donor funds and would need public support to develop the technical skills to facilitate the groups (Swanson 2008; Sulaiman and Holt 2002). Within FBOs or SHGs, problems related to social identity, including gender and

caste, mean that these organizations may not be completely inclusive and are subject to elite capture problems. When farmer groups interact with other institutions, social identities and other social status perceptions mean that they may be too weak to articulate their concerns (Sulaiman and Holt 2002). Building the capacity of such groups, and promoting the development of leadership and management skills so that farmers can demand the information they need, is therefore an important component of agricultural extension approaches.

### **THE WAY FORWARD**

Due to changing agricultural conditions agricultural extension today has a broad mandate, this review shows that despite pluralistic extension approaches in India, the coverage and use of these services are limited. Considering the large number of marginal and smallholder farmers, particularly in rainfed regions, a major need is to build the capacity of farmers to demand and access information to increase their productivity, profitability, and incomes. The information must be reliable and timely. For example, technologies need to be suited to the farmers' capacity to take risk, which tends to be low in rainfed regions, and integrated with available and timely services that support the relevant technology. To achieve this, incentives need to be created for knowledge intermediaries to act for farming communities.

The public-sector extension system still receives significant investment from the central government and is increasingly pushed as the major source of knowledge through a presumed transfer of technology. ATMA is a key component of the system. However, although ATMA has to some extent proved its usefulness in the pilot study, at the national level it still carries some of the deficiencies of the public-sector extension system, which has reduced its impact. The shortcomings include limited staff, rigid organization, poor capacity, a top-down linear culture, weak links to the research system (particularly KVKs), and limited reach to farmers. One option would be to delink public administration from extension, allowing it to be more closely associated with the research system and the KVKs, where technologies come from. The KVKs also face challenges that limit their ability to meet farmers' needs. They require more staff and greater partnership, which would facilitate the joint offering of demonstrations of recent technologies.

The scale and complexity of Indian agriculture, with many small farmers, remote regions, poor and subsistence farmers, and varied farming systems, means that a pluralistic

extension system will reach farmers more effectively than one method of funding and delivery. Public-private partnerships—for example, through the agri-clinic and agribusiness center (ACABC) scheme are one aspect that could be strengthened and encouraged. The ACABC scheme revision, which further supports agripreneurs through increased subsidies and widening the criteria for eligibility, is a positive action. There must be flexibility at the local level to facilitate public-private partnerships so that complementarities can be achieved to maximize the provision of information that meets the needs of farmers. However, the inherent culture and attitudes mean that public-private partnership and collaboration is not common.

Considering the poor reach of extension services in India, contacting the farmer directly is an appealing idea, with ICT approaches abounding. However, inadequate capacity development, infrastructure challenges, and lack of sustainability of these projects are major hindrances. ICTs could be useful tools to increase connectivity between the various extension approaches. However, ICTs alone cannot improve the institutional weaknesses in the system. Attitudes and perceptions within the various sectors need to be conducive to use such tools.

If extension is to remain relevant in India, particularly for marginal and smallholder farmers in rainfed regions, it needs to evolve to provide a diverse set of services that support agricultural livelihoods, offering relevant technologies that are integrated with appropriate services.

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