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IFPRI Discussion Paper 00729

November 2007

## **How to Make Agricultural Extension Demand-Driven?**

The Case of India's Agricultural Extension Policy

Regina Birner, International Food Policy Research Institute  
and  
Jock R. Anderson, World Bank

Development Strategy and Governance Division

## **INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE**

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## ABSTRACT

Many countries have recognized the need to revive agricultural advisory or extension services (the terms are used interchangeably here) as a means of using agriculture as an engine of pro-poor growth; reaching marginalized, poor, and female farmers; and addressing new challenges, such as environmental degradation and climate change. In spite of ample experience with extension reform worldwide, identifying the reform options most likely to make extension more demand-driven remains a major challenge. The concept of demand-driven services implies making extension more responsive to the needs of all farmers, including women and those who are poor and marginalized. It also implies making extension more accountable to farmers and, as a consequence, more effective.

This essay discusses various options for providing and financing agricultural advisory services, which involve the public and private sectors as well as a third sector comprising nongovernmental organizations and farmer-based organizations. We review the market and state failures, and the “community” failures (failures of non-governmental and farmer-based organizations) inherent in existing models of providing and financing agricultural extension services and then outline strategies to address those failures and make extension demand-driven. Then we examine India’s Policy Framework for Agricultural Extension, which has demand-driven extension as one of its major objectives, and review available survey information on the state of extension in India. We conclude that although the framework proposes a wide range of strategies to make agricultural extension demand-driven, it is less specific in addressing the challenges inherent in those strategies. Moreover, it remains unclear whether the strategies proposed in the framework will be able to address one of the major problems identified by farm household surveys: access to agricultural extension.

**Key words: Demand-driven agricultural advisory services; extension reform; India**



# 1. INTRODUCTION

In recent years, many developing countries have reaffirmed the essential role that agricultural extension can play in agricultural development (Birner et al. 2006; Anderson 2007). This renewed interest in extension is linked to the rediscovery of the role that agriculture needs to play in reducing persistent rural poverty (World Bank 2007b). Yet negative experiences with extension in the past have sparked considerable debate worldwide about the best way to provide and finance agricultural extension. What are the roles of the public sector, the private sector, and the third sector—nongovernmental organizations (NGOs) and farmer-based organizations—in providing and financing extension? How will the agricultural sector meet new challenges, such as helping smallholders access global markets and meet their standards? How can farmers cope with environmental degradation and climate change and respond to health challenges such as livestock pandemics? How can extension address the needs of women farmers and disadvantaged groups? What are the best uses of new information and communication technologies? All these questions are highly relevant for agricultural development in India (see, e.g., Vyas 2003).

In addition, agricultural extension faces the challenge of establishing a well-managed, effective, and accountable system that meets the needs of hundreds of thousands of farmers engaged in diverse and complex farming systems; the associated problems of monitoring and evaluating extension services and assessing their impacts; the dependence of extension on the performance of the agricultural research system and its feedback linkages; and the inherent problems of ensuring political commitment and fiscal accountability for agricultural extension (Feder, Willett, and Zijp 2001).

The way in which agricultural extension has been organized and provided to meet these challenges has changed over time, with remarkably similar trends across the globe. These changes have been linked to general trends in development thinking and practice. A strong belief in the role of the state—as the major actor of development—characterized the economic policies of many developing nations after they reached their independence. The establishment of public sector extension services fitted well into this paradigm. The Training and Visit (T&V) system, promoted by the World Bank in more than 50 countries, became a major model for providing and managing extension (Purcell and Anderson, 1997; Anderson, Feder, and Ganguly 2006). The disenchantment with the role of the state in development—reflected in the structural adjustment programs of the 1980s and 1990s—led to a downsizing of agricultural extension in many countries. The T&V system was finally abandoned in the late 1990s. The question remains whether the major reason was the lack of fiscal sustainability, the inadequacy of the model for many situations in which it was promoted, or its inconsistency with the growing emphasis on the role of the state as a facilitator rather than a provider of public services.

In the post-T&V era, thinking and practice about extension has moved toward pluralistic modes of providing and financing extension (Neuchâtel Group 2000; Birner et al. 2006). Major reform trends around the world include decentralization, contracting, privatization, cost recovery, and the involvement of NGOs and farmer-based organizations (Rivera and Alex 2005). Emphasis is now placed on making advisory services demand-driven (Neuchâtel Group 2006). The emphasis on demand-driven extension has to be seen in the context of changing domestic and external environments for agriculture, which change the information needs of farmers. In addition to information on new technologies, advice on marketing, product quality, and environmental challenges has become increasingly important (Sulaiman and Hall 2002).

The concept of demand-driven services is also linked to a paradigm shift in public sector reform toward responsive governance (UN/AF 2005). This paradigm emphasizes the need to make service provision accountable to users and to promote transparency and empowerment as essential conditions for increasing the effectiveness of public service provision. Thus, the focus on demand-driven service provision is not limited to agricultural extension: A similar emphasis can be observed in many other sectors. Efforts to make health care, education, and community water supplies demand-driven are also under way.

These general trends in agricultural extension can be observed in India. The T&V system played an important role in the Green Revolution. However, it was not well suited for the diverse farming system of rainfed areas and proved incapable of meeting the challenges of the post-Green Revolution period, including improving the sustainability of India's farming systems, promoting agricultural diversification, and integrating farmers into dynamic markets (Vyas 2003). As in other countries, many new approaches to providing and financing extension have been tried in India's post-T&V era (e.g., Sulaiman 2003). In 2000, the Extension Division of the Department of Agriculture and Cooperation of the Ministry of Agriculture developed a draft of its Policy Framework for Agricultural Extension, which aimed for a major reform and reorientation of India's entire agricultural extension system. In line with the shifting international paradigm, the framework emphasizes pluralistic agricultural extension and the "promotion of demand-driven and farmer-accountable extension" (Government of India 2000, sec. 3.3.1.5). It served as a basis for consultations with state governments and private sector organizations such as the Federation of Indian Chambers of Commerce and Industry (Sulaiman and Hall 2006). The document serves as the basis for India's extension policy and guides both internally and externally funded programs through which the government supports the states in their extension reform efforts.<sup>1</sup>

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<sup>1</sup> D. Umali-Deininger, personal communication, June 2007. Since agriculture is the responsibility of the states in India's federal system, state governments could use the framework, or elements of it, to reform their laws. However, this has not happened (R.V. Sulaiman, personal communication, July 2007).

The objective of this essay is to discuss various strategies for making agricultural extension demand-driven, using India's Policy Framework for Agricultural Extension as an example. For this purpose, we develop a system for classifying options for providing and financing agricultural extension that involves the public, private, and third sectors. Each sector is subject to a unique set of challenges and failures. As our discussion shows, market failures, state failures, and community failures are widespread in agricultural extension. Various approaches address these failures, but they too are subject to challenges. In other words, there is no "free lunch" in reforming agricultural extension.

We review India's Policy Framework for Agricultural Extension with regard to the strategies it identifies to make extension demand-driven, and we examine the provisions the framework makes to overcome market, state, and community failures. We also consider evidence from the 2003 Situation Assessment Survey of Farmers conducted by India's National Sample Survey Organization (2005) and other data to identify the extent to which the framework actually addresses the problems revealed by the survey. Because other public services are also attempting to become more demand-driven, the relevance of our findings goes beyond agricultural extension services.

## 2. CONCEPT OF DEMAND-DRIVEN SERVICES

The term *demand-driven* refers to the economic concepts of supply and demand. In economic theory, *demand* refers to the amount of good or service that a consumer is willing and able to buy at a given price. As discussed later in this essay, agricultural extension is characterized by various market failures that affect both the supply side and the demand side of advisory services. In view of these market failures, the public sector and the third sector have traditionally played a major role in financing and providing extension services. In this paper, the *third sector* is defined as comprising civil society organizations, including farmer-based organizations and NGOs. Among the NGOs, non-profit providers of extension services are of particular interest. In the absence of the market mechanism, public and third sector extension providers face considerable challenges to ensuring that the services they supply meet the needs and the priorities of their clients. The term *supply driven* captures the criticism that this challenge has not been met. The T&V system, for example, is typically described as a supply-driven or top-down model.

The concept of demand-driven extension emphasizes the need to provide services that meet the needs and priorities of farmers, even if the market mechanism—Adam Smith’s famous “invisible hand”—fails to make sure that extension services are supplied in the quantity and quality expected by farmers. The term *farmer-driven* or *farmer-led extension* might better address the goal of making these services meet the needs and priorities of farmers, even if they are not able to exercise *demand*, as the term is defined in economics.

Because agricultural extension is a major area of donor funding and demand-driven public services are high on the international agenda, it is not surprising that the Neuchâtel Group—an international donor coordination forum on agricultural extension—has published guidelines on demand-driven agricultural advisory services (Neuchâtel Group 2006). The group’s publication recommends strategies to facilitate the emergence of a market for extension services and strategies to increase the voice of farmers when the public sector is financing and/or providing extension services. The publication also highlights the need to strengthen the capacity of farmers to articulate demand, as well as the capacity of service providers to respond to farmers’ demands.

To establish demand-driven advisory services, it is useful to begin by identifying the extent to which market failures or other obstacles prevent the emergence of private sector extension services, which use the market mechanism to make services demand-driven. If an advisory service had no market failures and the market led to a socially desirable outcome, creating an environment in which the private or third sector could provide these services would be sufficient to make extension demand-driven. However, as discussed later in this essay, market failures in agricultural services are widespread. Hence,

the question arises as to how demand-driven, or farmer-driven, advisory services can be established when the market mechanism fails to make these services demand-driven.

To identify strategies for making agricultural extension demand-driven, it is useful to consider the range of institutional options by which these services can be provided and financed, taking into account that organizations of the public, private, and third sectors can collaborate in various combinations. Table 1 classifies the institutional options.

**Table 1. Options for providing and financing agricultural advisory services**

Provision of Service	Financing of Service				
	Public sector (various levels of decentralization possible)	Private sector: farmers (individuals)	Private sector: companies	Third sector: nongovernmental organizations (NGOs)	Third sector: farmer-based organizations (FBOs)
Public sector (various levels of decentralization possible)	(1) Public sector extension (various degrees of decentralization)	(5) Fee-for-service extension, provided by public sector	(9) Private companies contracting public sector extension agents	(11) NGOs contracting public sector extension agents	(15) FBOs contracting public sector extension agents
Private sector: companies	(2) Publicly financed contracts or subsidies to private sector extension providers	(6) Private extension agents, farmers pay fees	(10) Information provided with sale of inputs or purchases of outputs	(12) Extension agents from private company hired by NGOs	(16) FBOs contracting extension agent from company
Third sector: NGOs	(3) Publicly financed contracts or financial support to NGOs providing extension	(7) Extension agents hired by NGO, farmers pay fees		(13) Extension agents hired by NGO, service provided free of charge	
Third sector: FBOs	(4) Public financial support to extension provision by FBOs	(8) Extension agents hired by FBO, farmers pay fees		(14) NGO financing extension agents who are employed by FBO	(17) Extension agents hired by FBO, service free to members

Source: Adapted from Anderson and Feder (2004), Birner et al. (2006), and Rivera (1996)

### **3. AGRICULTURAL EXTENSION IN INDIA: INSIGHTS FROM THE 2003 SITUATION ASSESSMENT SURVEY OF FARMERS**

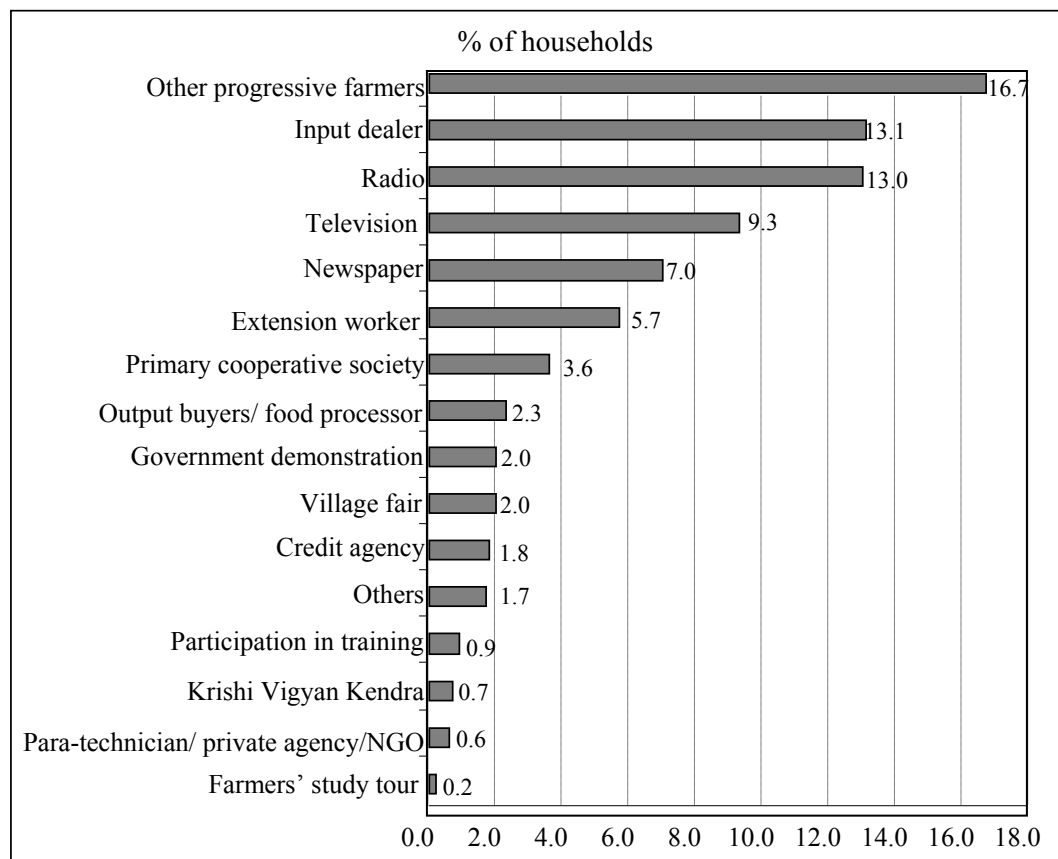
Before discussing the provisions of India's Policy Framework for Agricultural Extension, a brief overview of extension in India would be useful. Extension played an important role in promoting Green Revolution technologies, and the T&V system proved effective in the areas of India affected by the Green Revolution. However, it was less effective in the rainfed areas. There is a general perception that, after T&V was phased out in the 1990s, the existing extension system deteriorated, even though a variety of new approaches to provide and finance extension emerged (Sulaiman 2003; Sulaiman and Van den Ban 2001). These approaches included decentralization; contracting; group extension; provision of extension by para-extension workers, producer cooperatives, or farmer-based organizations; the establishment of agro-clinics by private entrepreneurs with initial government support; public-private partnerships in financing and providing extension; and the establishment of Internet-based extension through village kiosks (e-Choupals) set up by the private sector. As detailed later in the essay, the Agricultural Technology Management Agency developed a model that embodies several of these reform elements. In view of low agricultural growth rates and a vigorous political debate about agrarian distress, the political attention to agricultural extension also was renewed. As one of the major "thrust areas" in agriculture, India's 10th Five-Year Plan (2002–2007) emphasizes the need for "revamping and modernizing the extension systems and encouraging the private sector to take up extension services" (Government of India 2002, 528). As indicated earlier, the national Policy Framework for Agricultural Extension was developed in 2000 to serve as the basis for the central government's support to the states. In India's federal system, the states have the major responsibility for agriculture, including agricultural extension.

The 59th round of the Situation Assessment Survey of Farmers carried out by the National Sample Survey Organization (NSSO) in 2003 provides important information on the prevailing situation when the framework and the 10th plan were developed (NSSO 2005). Data for the survey, which is representative at the state level, were collected from 51,770 households in 6,638 villages.

Figure 1 displays the information sources for modern technology used by farmers in India. Farmers were asked to identify which, if any, of the sources they had accessed during the past 365 days to obtain information on modern agricultural technology. Nearly 60 percent of the farmers had not accessed any sources. When farmers did use sources, the input dealer was the second-most-used source after other progressive farmers. Input dealers correspond to option 10 presented in Table 1. Output buyers, food processors, and credit agencies also fall in this category, if the respective companies are private sector entities. The government extension worker (option 1 in Table 1) ranked sixth, followed by the primary cooperative society, which corresponds to options 8 and 17 in Table 1. Less than 1 percent of Indian

farmers accessed NGOs (options 3, 7, and 13 in Table 1), private sector extension agencies (option 6 in Table 1), or para-technicians.

**Figure 1. Percentage of farmer households accessing information on modern agricultural technology through various sources**



Source: Derived from data reported in NSSO (2005, 7)

Note: *Krishi Vigyan Kendra* refers to Farmer Information and Advisory Centres.

The surveyed farmers were also asked to rank the quality of information received as good, satisfactory, or poor. Table 2 shows the results by state. About half of the farmers ranked the quality of information received from most of the information sources as good. There are, however, considerable differences across states.

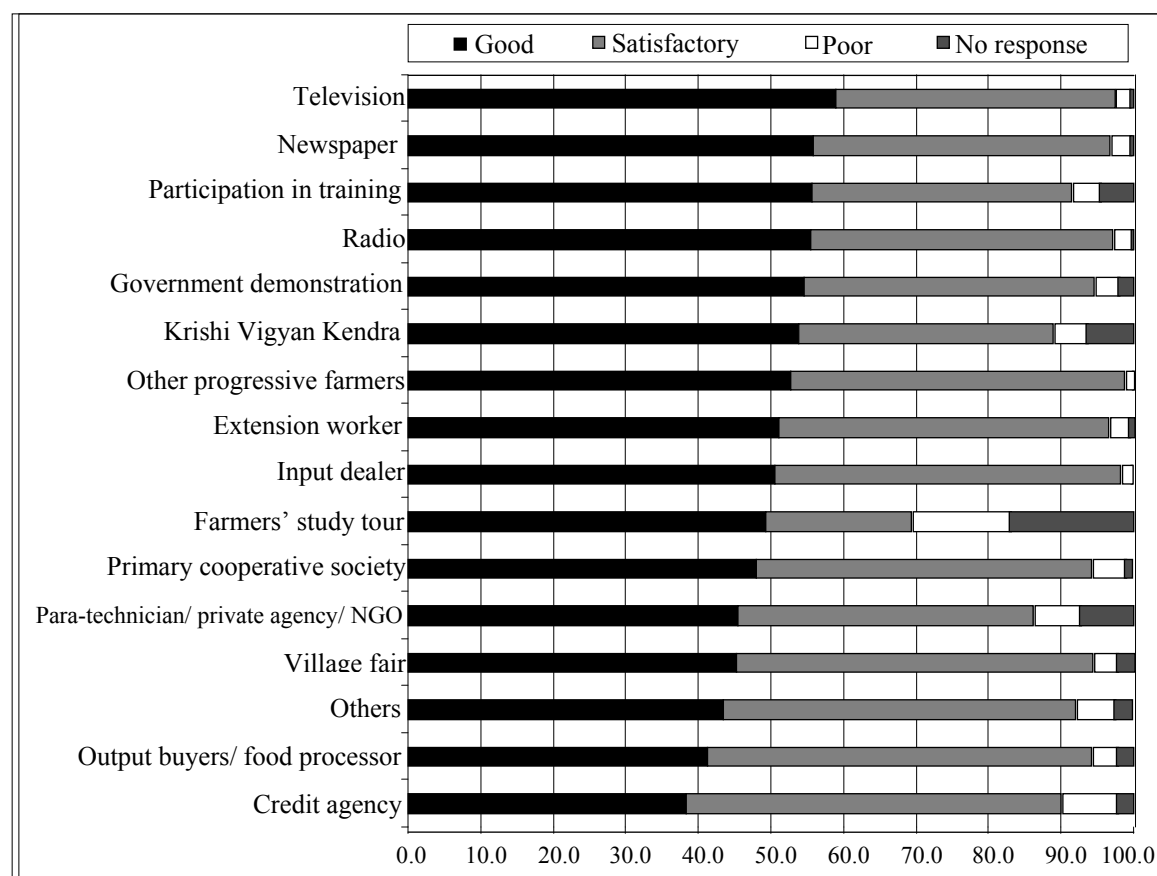
Figure 2 shows that the percentage of farm households who rated the quality of the information provided as poor was actually rather small for all types of information sources reported.

**Table 2. Percentage of farmer households reporting good quality information on modern agricultural technology provided by various sources**

State or Union Territory	Extension Worker	TV	Radio	Newspaper	Input Dealer	Other Progressive Farmers
Andhra Pradesh	45.8	60.4	44.6	53.8	57.0	54.9
Assam	30.5	40.1	36.4	47.8	28.4	24.8
Bihar	10.4	45.4	53.0	47.8	59.2	59.4
Chhattisgar	38.6	63.5	82.8	52.8	0.0	52.5
Gujarat	60.3	73.7	59.2	56.4	73.4	66.4
Haryana	59.8	59.5	65.4	60.8	54.1	60.4
Jammu and Kashmir	18.0	44.6	36.6	49.8	8.4	52.1
Jharlkhand	100.0	31.0	46.9	36.2	20.6	14.5
Karnataka	48.0	64.7	54.6	54.3	53.1	53.6
Kerala	51.0	60.6	62.1	62.3	70.6	57.7
Madya Pradesh	42.1	66.2	62.5	57.4	51.9	34.6
Maharashtra	48.3	57.8	54.2	53.1	45.3	56.1
Orissa	57.3	48.4	46.2	43.8	26.0	24.4
Punjab	51.6	67.8	63.4	70.5	44.8	85.5
Rajasthan	70.8	63.6	58.7	71.0	42	42.5
Tamil Nadu	78.7	69.2	68.8	64	70.7	68.5
Utter Pradesh	35.9	55.2	63.6	54.4	52.9	58.6
West Bengal	45.0	52.1	46.0	56.8	36.7	41.2
<b>India</b>	<b>51.1</b>	<b>59.0</b>	<b>55.5</b>	<b>55.9</b>	<b>50.5</b>	<b>52.8</b>

Source: NSSO (2005, 19)

**Figure 2. Farmer households' satisfaction with the quality of information from various information sources**



Source: Derived from data reported in NSSO (2005, A-135)



When asked to make suggestions for improvement, about one-third of the farmers mentioned improvement in the quality and reliability of the information provided (Table 3). For all information sources, this suggestion was more frequently mentioned than any other, including improved timeliness of information.

**Table 3. Distribution of farmer households suggesting improvements in information provided by various sources**

	Extension Worker	TV	Radio	Newspaper	Input Dealer	Other Progressive Farmers
Improvement in quality & reliability of information	34.4	30.5	32.8	36.9	39.3	32.3
Timeliness of information	20.1	18.6	19.9	18.0	12.8	12.3
Increase in frequency of demonstration	18	17.5	14.1	10.5	6.9	4.9
Improvement of quality of presentation	4.1	8.7	7.7	7.3	6.1	7.8
Improvement of professional competence of information provider	7.5	3.3	3.3	4.3	8.6	8.7
Others	14.9	20.3	20.7	22.2	24.7	32.8
All	100	100	100	100	100	100

Source: NSSO (2005, 22)

Table 4 presents the *percentage* of farmer households that tried the practices in modern agricultural technology recommended by various sources of information. The table also reports the percentage of farmers who adopted the practices, which might happen with or without trials. This tabulated information can reasonably be interpreted as an indication of the relevance of the information provided.

**Table 4. Percentage of farmer households trying and/or adopting recommended practices in modern agricultural technology**

	Extension Worker	TV	Radio	Newspaper	Input Dealer	Other Progressive Farmers
Trying recommended practice	65.3	53.3	56.3	54.1	81.5	82.8
Adopting recommended practice	62.5	53.1	54.5	53.8	81.7	85.1

Source: Derived from data reported in NSSO (2005: 20-21)

Table 5 reports membership in registered farmer-based organizations and in self-help groups. Only in Andhra Pradesh, Kerala, and Tamil Nadu was more than 10 percent of the farmer households registered.

**Table 5. Membership of farmer-based organizations**

State	% of Farmer Households with at Least One Person Belonging to:		State	% of Farmer Households with at Least One Person Belonging to:	
	A registered farmer-based organization	A self-help group		A registered farmer-based organization	A self-help group
Andhra Pradesh	2.4	17.7	Kerala	10.5	19.9
Assam	7.0	8.2	Madya Pradesh	0.8	2.7
Bihar	0.3	0.8	Maharashtra	2.2	4.9
Chhattis	2.4	6.5	Orissa	0.2	2.8
Gujarat	5.9	3.2	Punjab	0.3	1.5
Haryana	0.0	1.0	Rajasthan	0.4	0.6
Jammu & Kashmir	0.6	0.2	Tamil Nadu	3.4	12.9
Jharkha	0.2	2.8	Utter Pradesh	1.0	1.5
Karnata	5.2	8.1	West Bengal	4.0	1.9
			India	2.2	4.8

NSSO (2005), quoted in Bhalla (2006, 4)

The 2003 Situation Assessment of Farmers reveals several major challenges facing agricultural extension in India with regard to access and quality. More than one-half of the surveyed farmers did not access any information source on modern technology, only 6 percent had accessed a government extension worker, and less than 1 percent had accessed either NGO or private sector extension providers. The perceived quality of most of the information provided was rated as either good or satisfactory, but only around 60 percent of the farmers actually tried the technologies recommended by extension workers. This points to problems regarding the practical relevance of the advice provided by extension agents. The survey also shows that the number of farmers organized in farmer-based organizations or self-help groups was low, except in the southern states of Kerala, Andhra Pradesh, and Tamil Nadu. This implies that a considerable investment in social capital would be necessary to promote the involvement of farmer-based organizations in agricultural extension.

## 4. APPROACHES TO MAKING AGRICULTURAL EXTENSION DEMAND-DRIVEN

This section discusses the challenges of making various types of agricultural extension demand-driven and outlines strategies to meet these challenges. The provisions made in the Policy Framework for Agricultural Extension are then examined from this perspective. To identify the reasons for market failures, this section mainly draws on economic theory, while the broader agricultural extension literature is used as a basis for discussing the challenges and failures of the public and third sectors. The essay acknowledges that the analysis of demand-driven services is best approached from a multidisciplinary perspective. In particular, management sciences and the innovation systems literature, which focus on organizational learning, knowledge management, partnerships, and institutional change, can provide important analytical insights for approaches to make extension demand-driven.

### 4.1. Market-Based Extension

As discussed earlier, in the absence of market failure, the market mechanism can make agricultural extension demand-driven. Option 6 in Table 1 represents this “pure” market-based case: Private sector extension agents are paid by the farmers to provide extension services. Option 10—companies provide advice together with the sale of their inputs or purchases of outputs—may also be considered a market-based case. However, this kind of service does not necessarily cover all knowledge demands that farmers have, because it is usually limited to the products being purchased or sold. As discussed in section 3, the option-10 type of extension plays an important role in India, whereas the use of option 6—private extension agencies paid for by farmers—was very low. This suggests that market failures may play an important role. The following section discusses the factors that can lead to market failures in agricultural extension from a theoretical perspective.

#### 4.1.1. Market Failures in Agricultural Extension: Theoretical Considerations

##### *Reasons for market failures*

*Market failure* can be defined as the inability of a market production system to provide a good or service either at all or at a level that is optimal from the society’s perspective. Imperfections in the market mechanism can be caused by the nature of the goods to be provided or by positive and negative externalities. Market failures can affect both the supply side and the demand side of service provision (Umali and Schwartz, 1994; Bennett, 1995; Anderson and Feder 2007).

One reason for market failures in extension is that some types of information are public goods. Knowledge that is not farm specific, such as information about prices, is considered a *public good*, especially if it is distributed using a nonexcludable technology, such as the radio. Information provided

through the Internet can be made excludable more easily—for example, by requiring that farmers become members of a group to access password-protected Web sites. This kind of service represents a *club good*. Farm-specific advice has the characteristics of a *private good*. With a private or club good, the nature of the good does not cause market failures.

Market failures also occur if an extension service has the characteristics of a *merit good*—a good that consumers undervalue because of imperfect information. Lacking sufficient information about the value of extension, farmers are likely to demand less of it than is in their best interests. Extension services may also have the character of merit goods because of time-horizon problems. Poor farmers with a high time rate of discount may undervalue the benefits of extension if those benefits are only realized later. This problem is aggravated when the benefits of extension are perceived as uncertain and farmers are risk averse. While the nature of public goods leads to market failures on the supply side, the character of extension as a merit good leads to market failures on the demand side.

*Externalities* are another reason for market failures. Extension is associated with positive externalities if the benefits of extension accrue partly to the society as a whole. An example is the use of extension for reaching national goals such as food security. Extension services also have positive externalities when they contribute to reducing the negative environmental effects of agricultural production. This can also be seen as the use of extension to reduce the negative externalities of agricultural production. Educating farmers about the negative environmental effects of production and promoting technologies that help avoid those effects will not necessarily lead to a full internalization of negative externalities (Pannell 2006; Pannell et al. 2006). The impact of education depends on the farmers' environmental preferences, the differences between public and private costs, and the benefits of agricultural production systems that differ in their environmental impacts. The positive and negative externalities described here prevent market mechanisms alone from leading to a socially optimal provision of extension services because the private demand for them is insufficient.

The characteristics of smallholder agriculture in developing countries may also lead to market failures. Because provision of extension is subject to economies of scale, providing extension services may be profitable for private entrepreneurs only if they can reach a sufficiently large number of farmers. Agricultural producers are more spatially dispersed than urban populations, and they often have a more limited access to transportation infrastructure. Moreover, they are often not organized in groups. As a result, the transaction costs of providing extension to smallholders in less-developed areas are typically high, and private sector organizations may not find it profitable to provide those services. In early phases of agricultural development, the same factors (spatial dispersion, lack of coordination, high transaction costs) also give rise to market failures in other agrarian institutions, such as agricultural credit and marketing (Binswanger and McIntire, 1987; Dorward et al. 2004). These market failures may lead to

associated market failures in extension. For example, farmers may not have access to credit to pay for extension services. These problems are usually reduced in the course of economic development, thus creating scope for market-based extension services to arise. In contrast, the market failures resulting from externalities and public goods are not dependent on the stage of economic development.

### ***Strategies to overcome market failures***

The market failures related to extension outlined in the previous section can be addressed through public sector intervention and collective action. These approaches are discussed in sections 4.2 and 4.3. Market failures are not the only justification for the public sector to intervene in agricultural extension. As discussed in section 4.2, the state may choose to finance agricultural extension as a component of a poverty alleviation strategy.

Institutions such as contract farming that primarily address market failures in agriculture other than those specific to extension may also provide a solution for extension. Extension services can be embedded in contracts that integrate farmers into value chains. It is not clear from the NSSO data presented in section 3 how widespread this option was in India in 2003, because the survey did not specify under which type of contractual arrangements farmers received advice from input dealers or output buyers. Whether embedded advisory services are demand-driven depends on the degree to which the farmers' interests are aligned with the interests of the company offering the contract.

#### ***4.1.2. Provisions in the Policy Framework for Agricultural Extension***

The framework acknowledges the relevance of market failures in agricultural extension by pointing out that “pure public goods, economically backward regions, small, marginal farmers and landless labourers will not attract the for-profit private sector. Public Extension will therefore continue to play a central role in technology dissemination” [3.3.1.3].<sup>2</sup> At the same time, the framework emphasizes the need for “withdrawal of the public sector from areas where agro-services can be effectively and competitively provided by the private sector” to make sure that public sector provision of extension does not crowd out private extension providers [3.3.1.8]. However, given that less than 6 percent of farmers used public sector extension agents as sources of information (Figure 1), it is doubtful that crowding out played a role in the low prevalence of private sector extension. Unlike in other policy areas, such as agricultural marketing, India has no government regulations preventing private extension providers from operating. The framework mentions artificial insemination services, soil testing, fertilizer advice, farm improvement plans, and breeding plans as examples of “private goods” for which competitive markets exist [3.3.1.8].

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<sup>2</sup> In the remainder of this essay, the Policy Framework for Agricultural Extension is referenced by citing [in square brackets] the section number of the document posted on the Web site of the Department of Agriculture and Cooperation (Government of India 2000).

Moreover, the framework recommends using contract farming “wherever feasible,” particularly in the area of high-value and export-oriented agriculture [3.3.9.4].

## **4.2. Public Sector Extension**

In view of the market failures described in section 3, the public sector has traditionally played an important role in agricultural extension. Option 1 in Table 1 represents the “pure case” of public sector extension, which is financed by the state and provided by the staff of a public sector extension agency. This option corresponds to the “extension worker” category included in Table 2 and 3, as well as government demonstration plots and Krishi Vigayan Kendras (Farmer Information and Advisory Centres). Public sector interventions are subject to state failures, which are discussed from a theoretical perspective in the following section.

### *4.2.1. State Failures in Agricultural Extension: Theoretical Considerations*

#### ***Reasons for state failures***

State failures in agricultural extension occur because of problems related to information, incentives, capacity, political interests, and bureaucratic procedures and attitudes. Although these problems are not specific to agricultural extension, the complexity of smallholder agriculture aggravates some of the typical public sector problems. From the perspective of the new institutional economics, agricultural extension is transaction intensive. Moreover, moving from the delivery of standardized messages to demand-driven advice makes extension more discretionary and specific. Public services that are both transaction intensive and discretionary are particularly difficult to provide (Pritchett and Woolcock 2004).

Two types of *information problems* lead to state failures in agricultural extension. First, in the absence of a market mechanism, public sector extension providers have trouble determining the types of knowledge and advice farmers actually need. Making this determination is at the heart of making public sector extension demand-driven. An information problem that extension managers often face is the inability to determine what extension agents actually do in the field and to supervise them. Considerable information asymmetries exist between extension agents and their managers because of the spatially dispersed nature of agriculture and because an agricultural outcome, such as crop yields, are influenced by many factors, other than extension.

*Incentive problems* also lead to state failures. Public sector agencies can use various instruments to create incentives, such as merit-based promotion. However, when public budgets do not keep pace with inflation and general improvements in standard of living, as is often the case, the possibilities to use a differentiated system of promotion associated with salary incentives deteriorate. In addition, extension agents often have a lower social status than many other public sector employees and a lower rank in the

civil service system, which affect their morale. Another factor affecting agents' morale is that they do not have the operational funds they need to get to the field and work effectively. The incentive problems inherent in public sector extension agencies are closely linked with *capacity problems*. Public sector agencies often lack the incentives to invest in the capacity of their extension staff so as to keep their knowledge up-to-date.

Another failure inherent in public sector extension is *political interest capture*. Because large-scale farmers often have more political influence than smallholders, politicians have an incentive to induce the public administration to serve large-scale farmers and to concentrate on extension issues that are more relevant to them. Often the only government agents able to interact with a considerable part of the rural population, extension agents may be misused for political purposes, such as campaigning for the ruling parties in elections.

Public sector extension agents are also often burdened with other activities that are outside the mandate of agricultural extension. For example, extension agents have frequently been involved in organizing the supply of subsidized inputs and implementing credit schemes. They may also be asked to get involved in implementing public health programs and other government schemes unrelated to agriculture.

Corruption is not a typical problem in extension because knowledge services do not offer much scope for corruption. However, the more extension agents are involved in the distribution of inputs and credit or in the enforcement of laws, the greater is the opportunity for corruption.

*Bureaucratic procedures* make it difficult for extension agents to respond flexibly to local demands, especially in highly centralized systems. *Bureaucratic culture* is a typical obstacle to the reform of public sector agencies. Encouraging processes of institutional learning and change is a major challenge in public sector agencies. Likewise, *bureaucratic structures* often discourage the coordination of agricultural extension with other departments. Even links to the agricultural research system are often weak in spite of their obvious importance. Farmers may also suffer from *attitudinal problems* that are often widespread in traditional public sector agencies. Rather than treating farmers as clients, customers, or citizens, extension agents too often consider them state subjects. Typically, farmers who are poor, female, or part of some socially excluded group are particularly affected by attitudinal problems. A culture of mistrust (often on all sides) developed from attitudinal problems can also be an obstacle to building partnerships with the private sector and civil society organizations.

*Financial sustainability* is another problem of public sector extension, especially if cost recovery is not pursued. After donor-funded programs end, extension agencies are often left with an increased number of agents. Because staff numbers are difficult to reduce in public sector agencies, budget reductions limit the resources available to extension agents to do their jobs effectively, such as transport

facilities and training. These problems lead to negative feedback. Without sufficient resources, public sector extension services become ineffective, and their image of being ineffective leads finance ministries to deny requests for more resources.

Last but not least, public sector extension providers can cause the *crowding out* of private and third sector extension providers. This problem occurs when government agencies provide extension free of charge even though no market failure has occurred. Governments may also establish regulatory or bureaucratic barriers that prevent private sector extension agencies from emerging. This type of problem, however, seems more prevalent in the areas of government-supported input supply and marketing than in the actual provision of extension services. Hence, this type of government failure is more likely to affect extension services provided by input dealers and output buyers or processors than those provided by private extension agencies.

### ***Strategies to overcome state failures***

One important strategy to address state failures in agricultural extension is to involve NGOs, farmer-based organizations, and private sector agencies in the management and execution of extension services, as discussed in section 4.3. The present section deals with strategies that can be used within the public sector to overcome state failures and make extension more demand-driven. These strategies fall into four areas: institutional design, funding mechanisms, management approaches, and extension methods.

#### *Institutional design*

*Decentralization* is an important strategy to make public agencies more responsive to local needs. It can take two forms: *devolution*, or making public agencies accountable to locally elected governments, and *deconcentration*, or transferring authority to offices at lower levels of government but retaining accountability within the line agency (Rondinelli 1981). Decentralization involves its own challenges (Bardhan and Mookherjee 2006; Anderson 2007). Problems of political interest capture and incentives to burden extension agents with other tasks may increase after decentralization. If funding responsibilities are transferred to local governments, extension may no longer be a priority, especially when basic needs, such as water, education, and health, are not being met (Faguet 2004).

The institutional design of public sector extension agencies can help overcome some of the state failures discussed earlier. *Increased autonomy* for extension agencies can be an important approach to reducing political interest capture and limiting opportunities to burden extension agents with tasks outside their mandate. The challenge of increased autonomy is “delegatee drift” (Voigt and Salzberger 2002): A more autonomous agency may not necessarily pursue the public goals that policymakers intended in setting up the agency.



*Contracting* is an important strategy to address state failures by institutional design (Rivera and Zijp 2002). In this case, the state continues to finance extension, thus addressing the market failures discussed in section 4.1.1, but it can in principle overcome some of the state failures, such as the problem of bureaucratic rules and attitudes. Importantly, if contracting is done through competitive bidding, the competition mechanism can be used to address some incentive problems. However, contracting involves considerable challenges, because the public sector needs to manage the contracting process, which involves all the problems inherent in procurement, including corruption. Whether the public sector is better able to overcome the state failures inherent in managing its own extension agents than the state failures inherent in procurement is an empirical question.

#### *Funding mechanisms*

The way funding is provided to public sector agencies can affect incentive problems. A mechanism widely used in agricultural research, but less so in agricultural extension, is the competitive grant. An important strategy to improve both financial sustainability and demand orientation is cost recovery—for example, by charging a fee for participation in extension activities. In Table 1, option 5 represents this strategy. However, several problems are associated with cost recovery. It may be politically difficult to move to a fee-for-extension scheme. The willingness or ability to pay, especially among poor farmers, may be constrained by market failures. While having to pay a fee increases farmers' incentive to hold extension providers accountable, it is not necessarily a mechanism that makes extension providers accountable to the farmers. In the absence of a market mechanism, it is necessary to establish institutional channels by which farmers' demands are translated into management decisions. As long as farmer-to-agent ratios are more than 1,000:1, establishing such mechanisms necessarily involves farmer-based organizations rather than individual farmers. Such mechanisms have their own challenges, as discussed in section 4.3.

#### *Management approaches*

The public sector can use a range of managerial approaches to address the problem of weak incentives. As indicated earlier, merit-based recruitment and promotion is one of the most important strategies in this regard. Other instruments include performance contracts and other “managing for results” approaches, seeking feedback through client satisfaction surveys, establishing professional standards, and other efforts to promote a “mission-oriented” service. The new public management approach aims at introducing a range of private sector management techniques to public administration. Because public sector extension is typically part of the general public administration, the opportunities to use such instruments are often constrained by formal civil service rules and by an informal bureaucratic culture. Changing such formal and informal rules for extension in isolation from the rest of the bureaucracy is likely to be difficult. The

creation of semiautonomous agencies is one strategy to increase the scope for applying management approaches that aim to resolve incentive problems. All these strategies can be considered supply-side approaches. Involving farmer-based organizations in the management of extension is an important demand-side approach, as discussed in section 4.3.

#### *Extension methods*

Extension methods differ widely with regard to the scope they create for allowing farmers to articulate demand. On one end of the spectrum are transfer-of-technology methods that aim at disseminating new technologies developed in research stations, such as lectures and instructions, demonstration plots, and information dissemination via radio. Such methods—which were used, for example, in the T&V system—leave limited room for the articulation of farmers’ demands. On the other end of the spectrum are participatory extension methods, including participatory technology development and the Farmers’ Field School approach, which create more space to tailor extension to the demands of farmers (Tripp, Wijeratne, and Piyadasa 2005; Davis 2006; Anderson 2007; Van den Berg and Jiggins 2007). One challenge often faced by public sector extension agents is that the use of participatory extension methods requires the development of specific skills, such as group facilitation. Without investing in training for extension agents to develop such skills, it is difficult for the public sector—as for any other extension provider—to use the potential inherent in participatory methods.

#### *4.2.2. Provisions in the Policy Framework for Agricultural Extension*

The framework does not include a systematic description of the state failures the framework seeks to address. However, it mentions a range of problems. The challenge of financial sustainability and limited operational funds is explicitly mentioned: “States have barely been able to pay the salaries of extension personnel. Less than 10 percent of the budget is available for operational expenses, which has practically immobilized the service with scarcely any technology dissemination in the field” [3.3.3.1]. In reviewing earlier extension approaches, the framework criticizes the “top-down nature of the Training and Visit System” and observes that “farmer driven and farmer accountable feedback systems were not adequately developed” [2.3]. The framework also acknowledges capacity problems, dedicating an entire section to it. On the problem of crowding out, the framework states, “If the public sector continues to subsidize the services, this will prevent a ‘level playing field’ to the private sector, which will ultimately get crowded out” [3.3.1.8]. The framework also stipulates “a re-examination of existing Rules, Regulations & Acts to abolish provisions, which constrain private investment in delivery of agro-services” [3.3.1.8].

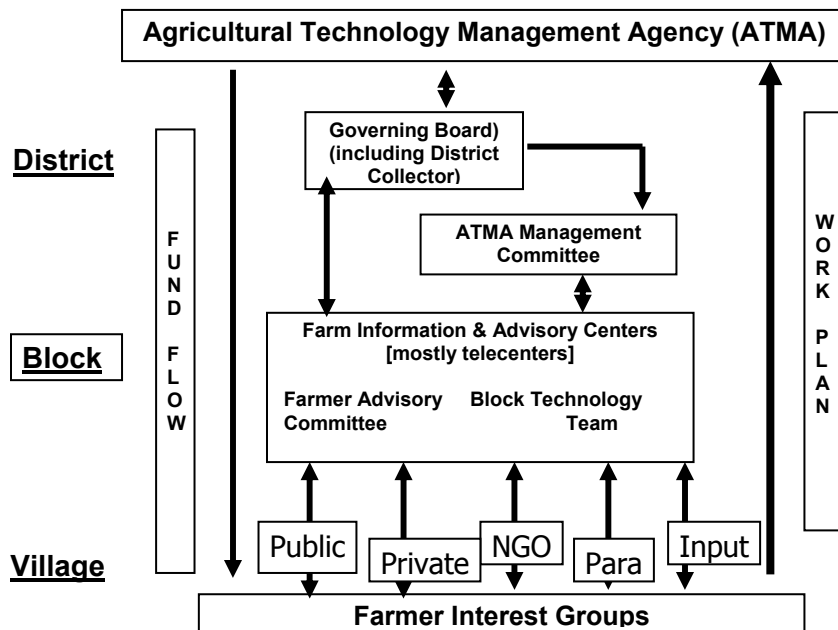
The following sections discuss the provisions of the framework in the areas of institutional design, funding, management, and extension methods.

## ***Institutional design***

### *Decentralization*

The framework places strong emphasis on decentralization, in the form of both deconcentration and devolution. The Agricultural Technology Management Agency (ATMA) model is proposed as the key concept for decentralizing decision making to the local level. However, the framework itself does not provide further specifications of the ATMA model, which was originally introduced under an agricultural technology project funded by the World Bank. The explanations presented here are based on project documents and other publications (Singh, Swanson, and Singh 2006). Figure 3 describes the structure of the ATMA. The governing board comprises the heads of various line departments and research units as well as stakeholders—including a cross section of farmers, women, and disadvantaged groups—and private sector firms within the district. The Farmer Advisory Block Technology Team comprises personnel with extension functions from various departments. The Farmer Advisory Block Technology Committee plays a key role in ensuring bottom-up planning. It is composed of the head of the Farmer Interest Groups, which are typically organized around specific crops. Farm Information and Advisory Centres provide a single-window delivery mechanism for extension. Owing to this setup, the ATMA promotes both coordination among government agencies and coordination among the public, private, and third sectors.

**Figure 3. Structure of the Agricultural Technology Management Agency (ATMA)**



Source: Singh, Swanson, and Singh (2006, 208)

In its original design, the ATMA may be considered a model of deconcentration rather than devolution because, at least in its original implementation, elected local government leaders were not part of its governance structure. However, the framework acknowledges that local governments—specifically, India’s three-tier Panchayati Raj Institutions - have started to play a role in extension. As stated in the framework, “Some states have also delegated suitable administrative and financial powers to the institutions. In these states, the extension personnel are placed under the administrative control of the local governments (*panchayats*), whereas for technical guidance they remain under the control of their respective technical line departments” [3.3.3.8]. Accordingly, the framework encourages the development of linkages between the ATMA units at village, block, and district levels and the evolving Panchayati Raj Institutions. Moreover, as part of the ongoing decentralization process, the Ministry of Agriculture expects to discontinue 27 centrally funded programs and reallocate those funds directly to the ATMA districts (Swanson 2006).

#### *Increased autonomy*

The framework suggests the strategy of increased autonomy discussed earlier. The ATMA model ensures a considerable degree of independence from the general public administration: The ATMA is a registered society, which has much flexibility, for example, to enter into partnership with private sector entities. The framework also promotes the principle of increased autonomy for the State Agricultural Management Extension Training Institutes by making such autonomy a precondition of support from the central level [3.3.5.4].

#### *Contracting*

The framework envisages “contracting out of extension services to private-sector, community-based organizations or NGOs in selected geographical areas (e.g., a village, cluster of villages, Block)” [3.3.3.9]. The framework acknowledges the need for a “transparent, laid out procedure” and for a “strict monitoring and evaluation process” [3.3.3.9]. Additionally, the framework points out that extension support services, such as security, mobility, and computer and secretarial services should be contracted “wherever possible” [3.3.3.11]. In particular, participatory planning should be contracted to NGOs; staff training, to universities or institutes; and monitoring, to farmer-based organizations, the Indian Institute of Management, and other institutions. Moreover, the framework states that, in contracting arrangements among governments, extension services, and farmers, “the farmers could play the role of beneficiaries, provider or co-financier of extension services” [3.3.6.3].

Related to contracting and the increased roles of the private sector, the media, and information technology, the framework stipulates that the public extension service should be made “leaner and

professional. It is envisaged that the approximately 100,000 public extension functionaries will be gradually reduced to be supported by the other two arms of services providers” [3.3.2.2].

### ***Funding mechanisms***

The framework suggests both the establishment of competitive grants and cost recovery mechanisms. It envisions a Competitive Agriculture Extension Grant Fund (CAEGF) and suggests that public extension agencies compete with private extension agencies for operational funds under such a grant. An independent impact evaluation is suggested to assess performance as a basis for subsequent eligibility to compete for funds. The Competitive Agriculture Research Grant Fund set up in the Indian Council of Agricultural Research and several states is mentioned as a model for the proposed CAEGF [3.3.3.9].

The framework encourages cost recovery: “Wherever farmers have the capacity to pay for public services, which are in the nature of private goods, realistic cost of such services should be recovered. However, provision is made for targeted subsidies to protect the vulnerable class of users” [3.3.9.5]. Likewise, the framework states that the private extension providers should charge for extension services or, in case of contract farming, recover the costs out of their profit margins [3.3.1.10]. Innovations in financial institutions, such as revolving funds, and linking farmers with credit institutions are also encouraged by the framework [3.3.9.7].

The framework addresses the problem of financial sustainability by suggesting cost-cutting mechanisms for extension services: “Cost effectiveness may be improved by relying on fewer but better qualified (graduate or post-graduate) field advisers who interact directly with researchers for subject-matter advice and then multiply their impact in the field by working with farmer groups rather than individual contact farmers” [3.3.9.2].

### ***Management approaches***

The framework creates the conditions for using incentive-oriented management approaches by increasing the autonomy of the extension agencies through the ATMA model, as indicated earlier. It also encourages the states to develop human resource development (HRD) policies and action plans by making them a precondition for central funding [3.3.5.1]. According to the framework, HRD policies “would also build in an effective system of rewards and incentives for public extension functionaries” [3.3.5.1]. However, improving merit-based recruitment and promotion and adjusting the pay scale of public sector extension agents to create incentives are not specified in the framework. Neither does the framework refer to the option of linking HRD reform efforts in extension to those in general public administrations.

The framework does, however, emphasize capacity strengthening. It stipulates increasing the professional qualification of extension staff by suggesting a bachelor of science degree in agriculture as the minimum educational requirement for farm advisors. “DOA's extension field staff would be

restructured and upgraded to create a professional cadre of Farm Advisors. In the process, the village extension worker (VEW) cadre would be incrementally phased out through reassignment and normal attrition” [3.3.2.6]. To improve the skills of the extension agents who will remain in the public sector, the framework advocates a “massive campaign” comprising a skill gap analysis and compulsory training in the form of foundation courses and a professional course [3.3.5.2].

### ***Extension methods***

The framework strongly recommends participatory extension approaches by encouraging participation in “working out the system description, problem diagnosis, search for appropriate technology, designing the process of implementation, monitoring and evaluation, and feedback” [3.3.1.4]. Likewise, the framework stresses the role of indigenous knowledge and partnership, highlighting that “the extension agent is no longer seen as the expert who has all the useful information and technical solutions; the indigenous technical knowledge of farmers and their ingenuity, individually and collectively, are recognized as a major source; and solutions to local problems are to be developed in partnership between the extension agent and farmers” [3.3.1.4]. The framework also suggests the use of group extension as a mechanism to make extension demand-driven. Farmer interest groups should “first generate a demand for information, technology and management techniques” [3.3.2.7]. The need for capacity building to enable extension agents to use such methods is fully recognized in the framework: “Extension workers therefore need new skills of negotiation, conflict resolution and mobilizing and nurturing community organizations” [3.3.1.4].

## **4.3. Third Sector Extension**

As Table 1 indicates, it is useful to distinguish two types of third sector organizations that can be involved in agricultural extension: NGOs, especially non-profit service providers, and farmer-based organizations (FBOs), which are membership organizations formed by farmers. Whereas NGOs are accountable to their funding agencies, FBOs are accountable to their members. Table 1 shows the wide range of options for NGOs and FBOs to be involved in the financing and provision of extension. Their involvement can play an important role for overcoming the problems of market and state failures.

### ***4.3.1. Potentials of NGO Extension***

In Table 1, options 3, 7, and 11 through 14 describe the various options by which NGOs can play a role in providing and financing agricultural extension. One of the major advantages of NGOs is their flexibility. Because they are not part of the public administration, they are not constrained by civil service rules and are usually less confined by bureaucratic procedures and cultures. Therefore, they can use a range of managerial approaches to create incentives for their staff, such as merit-based and competitive payment,

which are often not available to the public sector. Depending on its type, an NGO may be in a better position to attract staff members who are intrinsically motivated and dedicated to its cause. Moreover, an NGO is not usually subject to the problem of political interest capture and is typically less likely to be under pressure to assume responsibilities outside the mandate of agricultural extension. NGOs have often played a pioneering role in introducing group-based and participatory extension methods. In contracting systems (option 3 in Table 1), NGOs may compete among themselves or with for-profit private sector providers, which may create additional incentives for improved service provision.

#### ***4.3.2. Potentials of FBO Extension***

In Table 1, options 4, 8, and 14 through 17 refer to extension approaches that involve FBOs. FBOs have important advantages, especially for smallholder agriculture. As mentioned earlier, the farmer-to-agent ratio in most developing countries is more than 1,000:1. Hence, it is difficult for farmers to exercise demand and hold service providers accountable without some form of organization. FBOs can play an important role in aggregating farmers' demands for extension and in representing farmers in participatory models of extension management. For example, FBOs can represent farmers in developing plans for extension. They can also represent farmers on procurement boards charged with contracting extension providers and can participate in multistakeholder management boards. Moreover, FBOs can help reduce the transaction costs of providing extension, as in group-based extension approaches. FBOs can partner with public sector agencies as well as NGO service providers to make extension more demand-driven. An important advantage of FBOs is the fact that they are, in principle, directly accountable to the farmers who are their members.

#### ***4.3.3. NGO Failures in Agricultural Extension: Theoretical Considerations***

##### ***Reasons for NGO failures***

When NGOs work in the absence of a market mechanism, they are, in principle, subject to the same types of information problems as the public sector (see section 4.1.1). They are usually small compared with public sector agencies. Although their size contributes to their flexibility, it also reduces their outreach. In fact, the percentage of farmers who are reached by NGO extension is often small. As indicated in Figure 1, NGOs constituted an information source for less than 1 percent of Indian farmers. Some NGOs have grown to a considerable size, such as BRAC in Bangladesh.<sup>3</sup> However, the larger an NGO becomes, the more likely it will become subject to the same problems of bureaucracy faced by public sector agencies.

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<sup>3</sup> BRAC employs more than 90,000 people. See <http://www.brac.net/about.htm>.

Moreover, NGOs are subject to accountability problems (Ebrahim 2003). In principle, public sector agencies can be made accountable to farmers through political channels. NGOs are only accountable to their funding agencies. They often face problems of financial sustainability and have to cope with considerable fluctuations in funding. Moreover, NGOs are not immune to problems of mismanagement and misuse of funding. Neither are they immune to attitudinal problems. While NGO staff would not treat farmers as “state subjects,” they might become patronizing toward those they serve. Additionally, they can have incentives to combine extension with other goals, including promoting the worldview or religion with which the NGO is associated. Frequently, NGOs do not have their own extension staff but use public sector extension agents (option 11 in Table 1). If this fact is neglected, their contribution to increasing the supply of extension services is easily overestimated.

#### ***Strategies to overcome NGO failures***

To overcome the challenges they face, NGOs can to some extent use the same strategies discussed earlier for public sector agencies. For example, NGOs can use participatory extension methods and involve FBOs in extension management to solve information problems. Likewise, they can use the same types of managerial approaches mentioned earlier for the public sector, such as making use of client satisfaction surveys and focusing on results-based management. NGOs also can use cost-recovery methods, such as fee-based extension, to improve financial sustainability and increase farmers’ incentives to demand accountability (option 7 in Table 1).

#### ***4.3.4. FBO Failures in Agricultural Extension: Theoretical Considerations***

##### ***Reasons for FBO failures***

A major challenge for FBOs is the classical problem of collective action. If the benefits of FBO action are “nonexcludable,” farmers have limited incentives to incur the transaction costs of participating in an FBO (the “free rider” problem). The incentives to join local farmer groups for the purpose of group-based extension may be rather high, because the participants expect to benefit directly from their participation. However, to participate in extension planning and management beyond the district level, farmers need to become organized at a more aggregate level, which poses its own challenges. The literature on the role of group size and heterogeneity in collective action is extensive, and the relations continue to be debated (e.g., Poteete and Ostrom 2004). In any case, it is a common phenomenon that organizations formed for donor-funded projects collapse once project funding ends.

FBOs are not equally suited for all kinds of extension. They have particular comparative advantages to facilitate extension for activities that require collective action, such as many types of natural resource management. Where more farm-specific advice is required, their comparative advantage is lower.



A major challenge of FBOs is avoiding social exclusion and elite capture. FBOs are often dominated by middle-class and wealthy farmers. Poor farmers and socially marginalized groups typically play a limited role in the leadership of FBOs, even if they are members. Moreover, the representation of women in FBOs is often low, a problem linked to the sociocultural role of women in most societies as well as to the time constraints faced by women (see, e.g., Meinzen-Dick and Zwartveen 1998; Quisumbing 2003).

Importantly, FBOs are often confronted with capacity problems, particularly when they become service providers and hire extension agents. This requires skills in management, accounting, and supervision. If FBOs want to access high-value markets and export markets, capacity challenges are particularly pronounced. Depending on their size and activities, FBOs may choose to hire professional managers, a practice that compounds supervision problems. In addition, FBOs that hire professionals confront some of the same problems NGOs face. For example, they are not immune to mismanaging funds. Agricultural extension is not necessarily a priority for FBOs. Lobbying for state support in the form of subsidies is often a higher priority than helping their members become more competitive. If FBOs become large, they are also likely to become subject to political interest capture, because politicians have incentives to use them for mobilizing votes. Likewise, leaders of large FBOs may have incentives to run for political office, which in turn may lead to conflicts of interest.

### ***Strategies to overcome FBO failures***

FBOs are rarely founded for the purpose of agricultural extension alone. Extension may be one activity in commodity-based FBOs, such as dairy cooperatives or vegetable grower associations. Integrating extension into FBOs that are founded for a broader set of goals is an important strategy to reduce the transaction costs of collective action.

Investment in the managerial capacity of FBOs through training can be an important strategy to overcome the management challenges they face. The dairy cooperatives in India, for example, have a high capacity to provide services to their members because of specific investments in their capacity by the National Dairy Development Board. Leadership training is also a promising strategy, because meeting the collective action problem requires vision and leadership. Networking, which allows FBOs to learn from each other, is another approach to overcoming FBO failures. One strategy to deal with the elite capture and social exclusion problem is the formation of specialized organizations, such as a group exclusively for women farmers. Institutional design can also help to address some of the problems faced by FBOs. For example, women and disadvantaged groups may be allocated seats in participatory planning and management boards for extension.

In developing strategies to overcome FBO failures, it is important to keep in mind that donors and the public sector can play only limited roles. Ultimately, the formation of sustainable FBOs requires a

process of social mobilization in which the farmers themselves have to play the lead role. Donor-funded initiatives can only serve as catalysts. Importantly, the state needs to create the fundamental conditions that allow FBOs to thrive, such as a conducive legal environment and safeguards against political capture.

#### ***4.3.5. Provisions in the Policy Framework for Agricultural Extension***

##### ***NGO extension***

The framework foresees an important role for NGOs. It highlights their “ability to mobilize communities into Farmers Organizations/Farmer Interest Groups/Watershed Associations/Market Associations” as a major strength [3.3.3.6]. According to the framework, NGOs can either complement public sector extension by focusing on community mobilization or substitute for public extension through contracting approaches. The central government is also accorded a role in partnering with NGOs. As the framework states, of the then 261 Farmer Information and Advisory Centres in the country, 86 were operated by NGOs [3.3.3.6].

The framework also proposes the use of public funding for capacity building of NGOs: “A systematic training, capacity building and technical backstopping mechanism, supported through public funds is to be developed for NGOs involved in providing extension services” [3.3.3.6]. Apart from acknowledging the need to provide training, however, the framework does not refer to the challenges involved in NGO extension or to strategies to deal with those challenges.

##### ***FBO extension***

The framework identifies FBOs as a major mechanism to make extension services demand-driven. It defines several types of FBOs, including self-help groups, farmer interest groups, and commodity associations [3.3.1.5]. The framework emphasizes that FBOs can provide “an effective channel for both the dissemination of technology” to large numbers of small and marginal farmers, and feedback to research and extension [3.3.1.5] and points out that they are especially important “for high value commodities and resource poor farmers” [3.3.2.3]. Based on the ATMA model, FBOs play a key role in this extension approach.

The question of how to promote the formation of FBOs is addressed in the framework in various ways. First, the framework points out that government services can help identify and strengthen existing associations or cooperatives of farmers [3.3.10.4]. Likewise, as mentioned earlier, NGOs’ support in the formation and mobilization of FBOs is encouraged. The framework also foresees the use of public funds to support the formation of FBOs and their involvement in extension planning, implementation, and monitoring [3.3.1.5, 3.3.1.9]. Linking FBOs to local governments through existing institutions such as land management committees and federating FBOs at higher levels is also encouraged by the framework. The “internalization” of extension services by FBOs is cited as an “ultimate aim” [3.3.3.5]. These

suggestions correspond to options 8 and 17 in Table 1. The framework also considers FBOs a major avenue of farmer integration with agribusiness and considers “support to farmers’ organizations” as “perhaps the main single input that governments can provide” in this regard [3.3.10.4].

Although the framework addresses the collective action problem inherent in forming FBOs, it does not outline strategies to encourage small and marginalized farmers or female farmers to join FBOs. Likewise, the problem of local elite capture in FBOs is not addressed.

## 5. DISCUSSION

### 5.1. Making Agricultural Extension Demand-Driven

Section 4 identified various strategies to make extension demand-driven. Before discussing the relevance of the strategies to India's agricultural extension policies, it may be useful to summarize them. Three types of extension were distinguished: private sector (market based), public sector, and third sector. In private sector extension systems, it is the market mechanism that fosters demand-driven services. If a market for extension does not exist because government interventions have "crowded out" private extension providers, reducing such crowding out and creating a favorable investment climate for private providers is one strategy to make extension more demand-driven. To what extent crowding out, rather than other types of market failures, prevents the emergence of a market for extension is an empirical question. Besides the "pure" type of market-based extension where private sector organizations provide extension services and farmers pay for them (option 6 in Table 1), other market-based approaches include agricultural advice provided with the sale of inputs or purchase of products and advice provided in a contract-farming relationship. How demand-driven these approaches are depends largely on the bargaining power of the farmers in these relations.

Public sector extension is often not responsive to farmers' demands owing to a range of government failures. Strategies to make public sector extension more responsive to farmers' demands include decentralization of extension agencies, increased autonomy of extension agencies, contracting extension services and involving farmers in awarding the contracts, using funding mechanisms such as cost recovery to encourage farmers to express their demands, using management techniques such as new public management to emphasize responsiveness to clients, and using participatory extension methods.

Extension services provided by NGOs and FBOs (third sector extension) are not necessarily demand-driven either, because they are subject to various failures, too. The strategies to make NGO-based extension more responsive to farmers' demands are similar to those that the public sector can use. Strategies to make FBO-based extension more demand-driven include strengthening management capacity and the internal accountability mechanisms of FBOs, with a specific focus on overcoming problems of elite capture and social exclusion. Because FBOs can play an important role in making other types of extension more demand-driven and accountable, strengthening the capacity of FBOs to articulate farmers' demands is an important crosscutting strategy.

Each available strategy to make agricultural extension more demand-driven has its own challenges. In view of these challenges, the choice of strategies depends on underlying assumptions and value judgments, or paradigms, regarding the roles that the public sector, the private sector, and civil society should play in agricultural development and, more broadly, in economic development. The Policy

Framework for Agricultural Extension represents the paradigm of public sector reform that emerged in the “post–Washington Consensus” era (Williamson 2000). This paradigm acknowledges the role of the state in overcoming market failure, but it envisions a facilitating and enabling role for the state (Wolfensohn and Bourguignon 2004).

When privatization is not possible, outsourcing is considered a major solution, and cost-recovery is a central element of the paradigm outlined in the framework. Other core elements are user participation, accountability, and demand-driven services. Subsidies are accepted but only if targeted to the poor and to marginalized groups. Reforms within the public sector receive comparatively little attention the paradigm, based on an implicit scepticism regarding the ability of the public sector to reinvent itself.

The spirit and the language used in the framework are remarkably similar to international documents that reflect this paradigm. For example, the 2004 World Development Report on public service provision promotes similar strategies of contracting, cost recovery, client empowerment, and avoiding the “crowding out” of nongovernmental providers (World Bank 2004). Because the framework has not been translated into laws at the state level, it remains unknown, however, whether it would have been approved by elected political decision makers in this form, and which of the different elements would have been contested by different political parties. However, the framework can certainly be considered a bold approach to reforming extension services in India.

## **5.2. Has Extension in India Become More Demand-Driven?**

The framework was obviously inspired by the reform experience of the ATMA model. Studies evaluating the impact of the pilot operations have not focused on the question of whether extension has become more demand-driven, but according to various unpublished World Bank project documents, they have demonstrated encouragingly positive results. In the 28 districts in which the ATMA model was implemented under an agricultural technology project financed by the World Bank, the following increases in cropped areas were reported for the 1999–2003 period: horticulture, 12–16 percent; oil seeds, 3–11 percent; herbs and medicinal crops, 1–5 percent. Cereal areas declined from 55 percent to 47 percent, but importantly, yields increased 14 percent. Recorded farm income increased an average of 24 percent in project districts compared with 5 percent in other districts; this increase is statistically and surely economically significant if it can be sustained when the project is scaled up. However, collection of more broad-based geographic data and careful comparisons with remaining nonproject cases are needed to substantiate these results (Anderson 2007).

So far, the extent to which extension in India has changed on a broad scale since the framework was implemented remains unclear. India’s 10th Five-Year Plan stipulates expanding the ATMA model to 252 districts and extending it to all of India’s 600 rural districts during the 11th Plan (Swanson 2006). No

nationwide representative survey, similar to the 2003 Situation Assessment Survey of Farmers (NSSO 2005) is available to describe the current situation. According to extension experts, private sector participation in extension has increased because of growing exports and quality considerations, but the role of public-private partnerships has made little progress. Insufficient recruitment has reduced the number of public sector extension personnel, leaving especially remote areas poorly served. Technology dissemination has apparently remained the major goal of public sector extension, and evaluation systems still focus on indicators such as the number of trainings conducted or the area covered by modern varieties.<sup>4</sup>

Results from a survey of farmer households conducted by the Institute for Social and Economic Change (ISEC) and the International Food Policy Research Institute (IFPRI) on decentralization and public service provision in Karnataka provide some additional glimpses (Sekher et al. 2007).<sup>5</sup> Twenty-two percent of the 966 farmer households surveyed said they had at least one contact with a government extension worker during the past year, a significant increase over the average of 11.5 percent reported for Karnataka in the 2003 Situation Assessment Survey of Farmers (NSSP 2005). However, the most important problem reported by the respondents in the ISEC-IFPRI survey was that the “extension worker does not visit the village” (76 percent) or “does not visit the village regularly” (18 percent). As in the Situation Assessment Survey respondents to the ISEC-IFPRI survey were either very satisfied (51 percent) or somewhat satisfied (27 percent) with the knowledge provided by the extension agent. Group extension had apparently not become widespread in the survey area, because only 15 percent of all extension interactions were group based. To collect information on accountability and demand orientation, respondents were asked whom, if anyone, they contact to report problems. Ninety-four percent of survey participants who answered this question reported that they had not contacted anyone. Most respondents who had contacted someone had turned to a local government official. These findings suggest that the task of establishing functioning channels for demand-driven extension remains largely unfinished.

The insights from the Situation Assessment Survey and the Karnataka survey raise the question of how well the Policy Framework for Agricultural Extension is focused on the major problems of public sector extension in India. The framework’s emphasis on capacity strengthening and on increasing the professional qualification of extension agents suggests that the quality of the knowledge provided by the extension agents is a major problem. Market-oriented extension and farm diversification certainly require

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<sup>4</sup> R.V. Sulaiman, personal communication, July 2007.

<sup>5</sup> For this study, 80 *gram panchayats* (lowest tier of local government) in Karnataka were selected through stratified random sampling. The criterion for stratification was the classification of the state into three areas based on economic development criteria. The classification was developed by the Government of Karnataka using multiple criteria. Among the 80 *panchayats*, 100 villages and 966 households were selected using simple random sampling.

an upgrade in the knowledge of extension agents. However, the empirical evidence suggests that farmers presently perceive access to extension to be a more important limitation.

In this regard, the question arises as to what would be an appropriate level of access in the Indian context. On the one hand, a low coverage may be a normal feature in agricultural extension, because extension agents cannot interact with all farmers and technology diffusion relies on the spread of information among farmers. Given that the most important source for information about new technologies is “other progressive farmers” (nearly 17 percent, as shown in Figure 1) this mechanism works to a considerable extent. However, the low percentage of farmers who interact with government extension workers (nearly 6 percent, as shown Figure 1) may point to the problem of “absenteeism,” which is quite widespread in other areas of public service provision in India, such as health and education (World Bank 2007a).

It may be useful to compare this extension contact percentage with data from statistically representative surveys from other countries. For example, the Service Delivery and Satisfaction Survey III conducted in Malawi found that an average of 46 percent of farmers interacted with extension workers (Malawi Economic Justice Network 2006). Uganda’s National Service Delivery Survey conducted in 2004 found that 14 percent of farmer households had been visited by extension workers within 12 months before the survey compared with about 29 percent reported in Uganda’s 2000 survey (UBOS 2004). Considering that both countries are at a lower level of economic development than India, the figure of 6 percent from the Indian survey does indicate a low outreach of public extension services. Hence, it is an important question for further research whether the strategy proposed in the framework—to reduce the number of public sector extension personnel in combination with promoting group-based extension and private sector providers—will be effective in improving farmers’ access to extension services in India.

### **Challenges Still to Be Met**

The analysis in section 4 points to some further challenges that must be met for extension to become demand-driven. It is surprising that the framework does not address the challenges faced by FBOs regarding elite capture and exclusion, especially in view of the large role that the framework accords these organizations. In India, hierarchical local power relations are widespread. Members of scheduled castes and tribes face social and economic exclusion. Hence, special provisions to make sure that they are adequately represented in FBOs would have been justified in the framework to make sure that these groups’ demands for extension are equally considered. The same concern applies to women (Rangnekar 2006). The framework places strong emphasis on mainstreaming women in agriculture and proposes a wide range of measures to increase women’s access to services [3.3.7]. However, the proposed measures mostly target the supply side of extension—for example, by promoting gender-sensitivity training for

extension agents and increasing the number of female extension staff. Special provisions to strengthen women's ability to *demand* extension services are surprisingly absent in the framework. The design of the ATMA model envisages the representation of women and disadvantaged groups in the district-level governing board (Singh, Swanson, and Singh 2006), but such provisions are not mentioned in the framework.

As mentioned in section 4.2.2, the framework pays comparatively little attention to the challenges inherent in reforming public sector extension agencies, in creating incentives for the staff who continue to be employed by the public sector, and in changing bureaucratic cultures and promoting institutional learning and change (Sulaiman and Hall 2002). Although the framework acknowledges the need for public sector involvement in serving the poor and reaching remote areas, important challenges to achieving this goal, such as creating incentives for qualified staff to serve in remote areas, are not addressed. The framework emphasizes reform elements that are in line with the post-Washington Consensus paradigm, such as contracting and competitive grants, but little empirical evidence exists to show the circumstances under which these approaches improve extension services.

Given the size and diversity of India, it is also surprising that the framework does not place more emphasis on the need to tailor solutions to specific circumstances. What works to make extension demand-driven in Andhra Pradesh, for instance, may not work in Bihar. The framework seems to assume that ATMA-type approaches are the best solutions under all circumstances, even though there is some evidence that the ATMA model did not work equally well in all districts where it was piloted (Sulaiman 2003). An institutional analysis to determine the reasons for the variable performance (what worked and what did not and why) was not conducted, and the different states face different challenges to fit the model into their institutional structures.<sup>6</sup> Other interesting reform approaches are available, such as the Kerala Horticultural Development Program, from which important lessons on extension reform could be derived (Sulaiman and Hall 2004). Evidence from public sector reform in general, and from extension reform in particular, suggests the need to move from "one size fits all" to "best fit" approaches (Levy and Kpundeh 2004; Birner et al. 2006; Anderson 2007). Moreover, as analysis of the Indian extension system has pointed out, a focus on experimentation and learning is essential to improving agricultural extension in India (Sulaiman 2003).

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<sup>6</sup> R.V. Sulaiman, personal communication, July 2007.



## 6. CONCLUDING REMARKS

Agricultural extension is back on the global development agenda, and reform measures are being actively pursued in many parts of the developing world. India is an important case to watch because of its long-standing commitment to supporting the vital role of extension in agricultural development. Moreover, India is a major reformer, with many exciting innovations fostering improved service provision and agricultural outcomes. But the process is thus far incomplete, not only in implementation but also in policy analysis. We have endeavoured to identify some important gaps in analysis and some key issues that still need to be addressed. This is a time for agricultural policymakers to reflect afresh on the unmet demands, implicit and explicit, for provision of agricultural extension services to *all* of India's deserving farmers.

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