

## Module 3: Investments in Agricultural Extension and Information Services

This module summarizes principles and good practice for investments in building effective and sustainable extension systems. Approximately one million people continue to work in agricultural extension worldwide (B. Swanson, personal communication),<sup>1</sup> but the structure and function of national extension systems continue to change. In the past, extension services, largely public, were equated with the transfer of agricultural production technology in predetermined “packages.” Extension systems are now understood to be much broader and more diverse, including public and private sector and civil society institutions that provide a broad range of services (advisory, technology transfer, training, promotional, and information) on a wide variety of subjects (such as agriculture, marketing, social organization, health, and education) that rural people require to better manage their agricultural systems and livelihoods. Trends in extension are reviewed in box 3.1.

### Box 3.1 Global trends in agricultural extension

Public extension systems in some European countries have been substantially downsized or phased out altogether. In North America and Western Europe, technical support to farmers is largely provided by highly qualified agricultural specialists who work for private firms, especially input supply companies. At the same time, some Eastern European countries, such as Poland and Hungary, still maintain large public agricultural extension systems. Other European and Commonwealth of Independent States (CIS) countries are attempting to privatize their extension systems, with mixed results. In general, farmers are unwilling to pay for agricultural extension services on a continuing basis unless these services are integrated with the sale of inputs or with other technical and/or marketing services.

The total number of workers in extension systems in most developing countries appears to be stable, but these systems are also being transformed to become more effective and cost efficient. For example, China continues to have the largest extension system in the world (371,350 extension workers in crop-related extension, and a comparable number in livestock extension), but it has moved rapidly to shift the cost of extension to farmers. It now recovers most of the cost of extension through the sale of inputs and services to farmers at the county and township levels.

India, which has the second largest number of extension workers in the world (110,000), is undergoing a different type of transformation, decentralizing its extension system and making it more “market driven.” Under this new decentralized approach, farmers are beginning to set extension priorities at the district and block levels, but at the same time they are being asked to pay for some extension services, particularly those related to the production and marketing of high-value products.

Less information is available about national extension systems in Africa, the Middle East, Latin America, and Southeast Asia, but based on current data from selected countries, it appears that the number of extension workers in most countries remains relatively stable. For example, Indonesia continues to have the third largest public extension system, with 30,000 staff members;

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<sup>1</sup> Based on figures received from regional extension associations, January 2006.

Iran has 10,372 public extension workers across all subject matter areas; South Africa has 3,034 public extension workers; and Tanzania has 7,290 public extension workers. Mozambique, on the other hand, has a total of 1,838 extension staff, including 777 public extension workers, 840 extension agents working for NGOs, and 228 private extension workers. During the coming decade, it is expected that many national extension systems will shift their efforts toward organizing farmers into groups (building social capital) and then helping these groups increase farm income and contribute to increased rural employment by focusing on high-value commodities and products.

Source: B. Swanson

### **Box 3.2 Returns to investment in extension and information services**

Evaluations have often criticized extension for low efficiency and lack of equity in service provision but report relatively high cost/benefit ratios (Perraton et al. 1983). Rates of return on extension investments in developing countries have generally ranged from 5 percent to more than 50 percent (Evenson 1997). A recent metastudy of 289 studies of economic returns to agricultural research and extension found median rates of return of 58 percent for extension investments, 49 percent for research investments, and 36 percent for investments in research and extension combined (Alston et al. 2000). Because the methodological problems are daunting and rates of return are highly variable even for the same program, there is considerable need for additional evaluation of extension impacts.

Source: Gautam 2000; Feder, Murgai, and Quizon 2003

## **Rationale for Investment**

The success of rural development programs depends largely on rural people's decisions on a host of questions, such as what to grow, where to sell, how to maintain soil fertility, and how to manage common grazing areas. Most clients of extension are farmers, both women and men, but many other rural people who are not economically active in farming also rely on extension and information services to inform and influence rural household decisions.

Past returns to extension investment have been variable but often high (box 3.2). Future increases in agricultural production and rural income must come from intensification rather than "extensification" of agriculture. Knowledge and related information, skills, technologies, and attitudes will play a key role in the sustainable intensification of agriculture and the success of other rural investments. New technologies and markets offer rural households new opportunities but require better access to information. Globalization and the need to trade in a global environment requires farmers and other rural people to become more competitive by acquiring more knowledge to base decisions on and new skills to implement those decisions.

Although agriculture remains critically important for their economic well-being, rural people need other options and expect more information than in the past, including information on healthcare and nutrition, consumer products, and government and other programs. Many farmers want to stop farming (or will be forced to stop because of lack

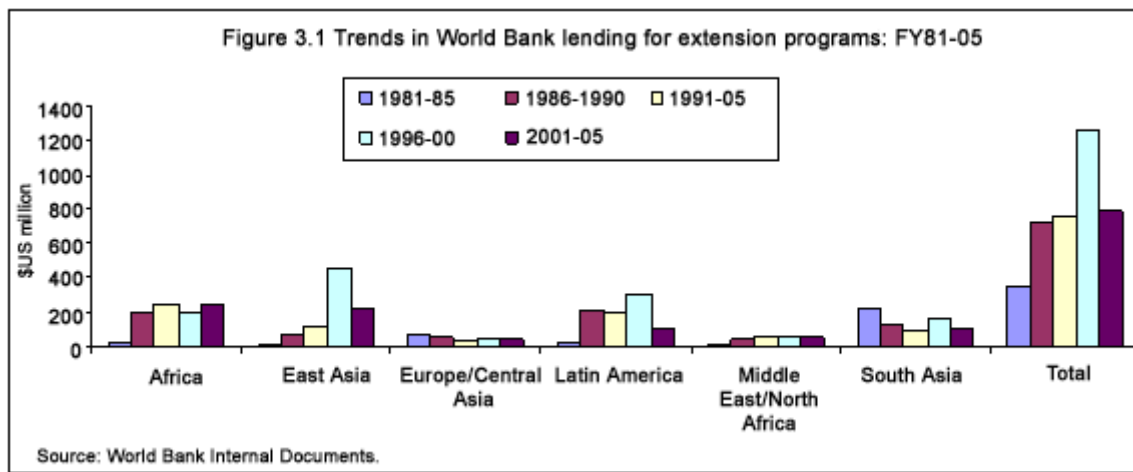
of competitiveness) and will seek information, education, and alternative skills to prepare for new employment.

Extension services contribute significantly to environmental protection and sustainable management of natural resources by promoting conservation of land, water, and forests; conservation of biodiversity; pesticide safety and residue minimization; livestock waste management; and water quality preservation and watershed protection. The client base for environmentally oriented extension goes beyond the small-scale farmer because the varied activities of rural residents, such as hunting, disposal of waste materials, and harvesting of fuel wood and other products, all affect the environment.

## Past Investment Activity

Public extension expenditures grew rapidly in the 1970s and were estimated at US\$6 billion globally for 1988 (Swanson, Farmer, and Bahal 1990). Since then, structural adjustment programs, public sector retrenchment, and reallocation of expenditures suggest that there may have been a substantial decrease in funding for extension; however, total funding often remains high (up to 2 percent of agricultural GDP). In some countries the extension service is one of the largest agencies in the government.

Since 1981, the World Bank has provided US\$3.9 billion in direct support for extension while mobilizing another US\$2.9 billion from governments, beneficiaries, and other sources (figure 3.1). This Bank financing has fostered recognition of the importance of extension and has shaped development of many national extension systems.



In the past, the World Bank was often associated with Training-and-Visit (T&V) extension, a system popularized in the 1970s and 1980s to address severe management deficiencies in extension services. T&V proved effective in specific circumstances in which standardized technology packages could be introduced over large, relatively homogeneous areas. But T&V did not resolve problems of sustainability or address the needs of diverse rainfed systems and was widely considered a failure.

The World Bank Operations Evaluation Department (OED) review of Bank support to extension services found that extension projects produced considerable benefits. The results of the OED review also noted concern over sustainability because three out of four projects were rated “uncertain” in terms of likely sustainability (Purcell and Anderson 1997). The OED study emphasized that no single extension model is universally relevant, and situation-specific models need to be developed based on general principles and analyses of specific farming systems and social conditions. The study found widespread problems with inadequate funding for recurrent costs, insufficient technology, poor links to research, limited farmer participation, and a top-down mentality. Extension staff quality was a major constraint, and staff training programs were inadequate to correct deficiencies. The OED study suggested that investment in state-run, staff-intensive extension services is inappropriate for many countries and concluded that temporary, targeted programs may provide a better return on investment. It also revealed a limited capacity of most borrowers and of Bank staff to undertake the necessary analysis for the design of extension systems.

By the early 1990s, the World Bank recognized the need for new approaches to extension investments, including a larger role for the private sector, NGOs, and producer organizations as well as a more inclusive approach to women, indigenous peoples, and poor people (Cleaver 1993; Ameer 1994; Antholt 1994).

## **Key Issues for Investment**

Future investments must avoid past mistakes and seek more sustainable institutional arrangements for providing knowledge and information services to rural people. The emerging view is that the farmer is a responsible entrepreneur, managing complex agricultural and off-farm activities to maximize well-being within many constraints. To achieve this goal, the farmer is a key innovator who interacts with a wide range of actors, including input suppliers, extension agents, traders, NGOs and community members to acquire information and knowledge for his/her farming operation. The underlying realization is that improving rural productivity, social equity, and competitiveness requires effective and efficient agricultural knowledge and information systems (AKISs) (FAO/World Bank 2000). The AKIS concept focuses mainly on linking farmers with public institutions in extension, research and education. While these are key stakeholders in increasing knowledge in agricultural production systems, the AKIS concept is now evolving toward the more comprehensive concept of agricultural innovation systems. These systems integrate farmers (often in producer organizations), researchers, extension workers, various private sector actors (including traders, input dealers, and supermarket procurement officers) and civil society organizations active in rural areas to harness knowledge and information from various sources for better farming, processing, and marketing to improve livelihoods and agribusiness development.

Providing diverse extension and information services to rural people necessitates a diversity of public and private service providers on both the supply and demand side of the extension services market. The functioning of this market is conditioned by the institutional and policy environment for innovation, as well as by the quality of services provided. The diversity in extension service suppliers reflects also the diversity in types

of information and cost of providing information. Radio and television, input suppliers, agribusinesses, newspapers, neighbors, public extension agents, religious organizations, bankers, NGOs, and other agencies each have their own strengths, weaknesses, and motivations. This framework underlies the guiding principles for investment in extension and information systems (box 3.3) (FAO/World Bank 2000).

## **Future Directions for Lending**

Future investments must not only recognize a diversity of clients and client needs; they must also recognize that clients function within different innovation systems characterized by varied approaches to generating, managing, and sharing technology and knowledge, and they must give attention to facilitation, capacity building, and information services. Making services more responsive to clients will entail focusing more on human and social capital development, as well as on giving the farmer more influence over the extension agenda and the way in which services are delivered. To develop effective, flexible extension systems to better serve the functioning of a productive innovation system, investments are needed to clearly define public and private sector roles, enhance financial sustainability, strengthen clients' ability to express demand for services, support extension system reforms, improve quality of services, address key poverty and environmental issues, and exploit the potential of mass media and communications technologies.

### **Box 3.3 Guiding principles for public investment in extension systems**

Defined role for the public sector:

- Made within a sound policy framework that provides a conducive environment for investments to achieve desired impacts.
- Based on clear national strategies that articulate a long-term vision and national policies, plans, and objectives for extension investments. Economically efficient with benefits and expected outcomes that justify the investment.
- Equitable with appropriate services available to the poor and minority groups and with a keen recognition that farmers and herders are both male and female.

Strengthened demand for services:

- Demand-driven, responding to farmer needs and interests and involving clients in program governance, priority setting, and evaluation, often by working through and strengthening producer organizations.
- Participatory, drawing on and empowering local people to solve problems and mobilize local resources.
- Based on subsidiarity, with responsibilities devolved to the lowest possible level of government and consistent with organizational competency, comparative advantage, and efficient use of funds.

Improved quality of services:

- Accountable for the use of funds and for results with incentive structures that ensure assignment of qualified staff who are given adequate support and held responsible for

providing services to clients.

- Relevant to the needs and resource constraints of different categories of clients, balancing objectives of profitability, productivity, and sustainability, and drawing on effective training and links to research and other sources of innovation.
- Pluralistic, involving a range of institutions with different comparative advantages; often separating financing and service delivery to broaden the range of service providers, raise operational efficiency, and make service providers more accountable for performance and results.
- Well monitored and evaluated to ensure a results orientation, account for impacts on human, social, and environmental capital, and demonstrate cost effectiveness.

Based on a sustainable system:

- Develop human and social capital necessary for clients and local institutions to foster continuous learning and problem solving.
- Cost-shared by major stakeholders.
- Develop political support from stakeholders as a basis for securing future financing.

Source: FAO/World Bank 2000

*Defining public and private sector roles.* Private market mechanisms often fail to provide a socially optimum level of extension services for two reasons. First, the demand from small-scale farmers may not be expressed well because these farmers may fail to recognize benefits from alternative production and marketing options, may have limited purchasing power, or may not be organized to access services. Second, supply is constrained because few individuals or institutions may be capable of providing technical services or private firms may have limited opportunities to appropriate benefits by charging to provide information. The characteristics of specific services influence whether they are best supplied by the private, voluntary, or public sectors—different extension service needs are best fulfilled by different agencies. Extension services can be categorized by differences in excludability (the degree to which farmers who do not pay for a service can be excluded from its benefits) and rivalry (the extent to which one farmer's use of a service reduces its availability to others). While there is frequently a mix of public and private elements in any specific extension service, some common services can be broadly classified, as reflected in examples in table 3.1.

Public and private sector roles and skill sets frequently complement and occasionally overlap each other, providing justification for public-private partnerships. If families or firms benefit from services, they should pay; if communities benefit, community groups or local government should pay; and if the region benefits, the province or state should pay. The public sector should finance extension services that generate important benefits for society as a whole, but which extension clients are unlikely or unable to finance on their own. The most important positive externalities associated with extension and information services are productivity spillovers, positive environmental and health (human, livestock, and crop) impacts of appropriate technology use, and poverty

reduction. Public financing is often important for coordination (often indirect) of extension activities, regulation and provision of unbiased technical recommendations, disaster response and poverty-oriented programs, training and development, and communication programs in which economies of scale/scope exist. In general, the share of the public sector in the funding of extension services will decline with the transition to commercial agriculture. For low-income countries, public funding and other roles of the public sector may continue to be critical for many years.

**Table 3.1 Economic characteristics and delivery mechanisms for different extension services**

Service	Main type of good	Major delivery mechanisms		Main financing mechanism	
		Public	Private <sup>a</sup>	Public	Private <sup>a</sup>
Farm advisory services (generic)	Public	Yes	Yes, if contracted	Yes	No
Farm advisory services (farm-specific)	Private	Yes	Yes, preferred	Yes, for small-scale farmers and with cofinancing	Yes, preferred
Farmer training	Toll	Yes	Yes	Yes	Yes
Integrated pest management advice	Public	Yes	Yes, if contracted	Yes	No
Market price information (individualized services)	Toll	No	Yes	No	Yes
Market price information services (mass media)	Public	Yes	Yes, preferred	Yes	Yes
Environmental conservation information services	Public	Yes	Yes, if contracted	Yes	No
Irrigation water management advice	Common pool	Yes	Yes, farmer organization preferred	Yes	Yes, if cofinanced
Farmer organization development assistance	Common pool	Yes	Yes	Yes	Yes
Advice on control of major contagious diseases	Public	Yes	No	Yes	No
Product quality certification for export markets	Private	Yes	Yes	No	Yes, preferred

Source: Authors

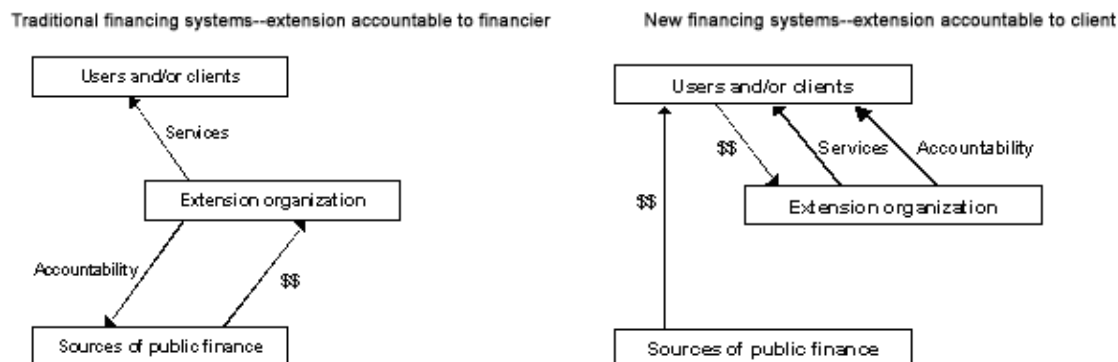
<sup>a</sup> The term "private" includes farmer organizations.

*Promoting private sector services.* The private goods element of many extension services has raised interest in privatizing extension services. In reality, most information services are provided outside of government, and extension systems need to be designed with the understanding that they will be cost effective “only if the public role is defined to complement what the private sector can and will deliver” (Beynon et al. 1998). Public

sector programs should avoid competing with private extension services and should provide technical support to private providers, develop public-private partnerships for service delivery, share information, coordinate activities with private service providers, establish mechanisms for accreditation of private advisory services, and establish financing mechanisms to cofinance private service delivery.<sup>2</sup>

*Contracting for extension services.* There is growing recognition that, even in situations in which public financing of extension is justified, private service delivery is often the more efficient way to serve clients. Contracting strategies for extension services take many approaches to the division of responsibilities for financing, procurement, and delivery of services, though most reforms involve public funding for private service delivery (Rivera, Zijp, and Alex 2000). Contracting promotes institutional pluralism, accountability to clients, and efficiency in operations. Contracting directly by farmers introduces fundamental changes in relationships (figure 3.2). Public financing of contracted extension and information services represents an investment in public goods knowledge for smallholders as well as support for the development of a pluralistic extension system and extension services market.<sup>3</sup>

**Figure 3.2 Alternative financing mechanisms for extension services**



Source: World Bank 2002

*Developing sustainable financing mechanisms.* Cost recovery is important to expand the resources available for extension and to ensure that clients value the services being provided. Key to this are:

- *Introducing cost-sharing mechanisms.* Various cofinancing arrangements are possible, including financing under a producer-controlled levy on agricultural products, fee-for-service arrangements, cost-sharing for a total program, or

<sup>2</sup> See the IAP, "Estonia: Transition to Private Extension Advisory Services."

<sup>3</sup> See the AIN, "Contracting Extension Services."

cofinancing by a producer organization. Although large producers might be able to fully fund costs of extension services, most commercial farmers will drop out of programs if their share of costs exceeds 50 percent to 65 percent of the total. For small-scale farmers in developing countries, a cost recovery rate of 10 to 20 percent is a reasonable initial target.

- *“Downsizing” public extension agencies.* Downsizing is a difficult but inescapable issue for many public extension agencies. When public funding and operating procedures do not allow government staff to be used effectively and profitably, it is preferable to reduce their number. Reduction might involve transferring staff to decentralized government units (but only if they can be used effectively there), early retirement with redundancy payments, or other arrangements, such as secondments to or contracting by NGOs and other development programs. Undertaking new extension initiatives without addressing an existing problem of overstaffing will undermine program sustainability.
- *Accessing other sources of funding.* A diversified funding base will enhance the financial sustainability of a public extension program. Funding sources might include environmental groups (ministries of environment, NGOs, and beneficiaries of environmental services); special interest groups (organizations for women and youths; expatriate communities); humanitarian NGOs; and others.

*Strengthening the demand for services.* Future investments in extension must emphasize development of capacity for clients to express their demand for services, increase their influence over or active participation in programs, and enhance their ability to finance services. Investments can introduce inclusive participatory approaches, accountability mechanisms, and strengthen producer organizations.

- *Increasing client participation.* Participatory extension intensifies and improves interaction between farmers and extension agents, recognizing that innovation requires decisions by the farmer to change practices. In such programs, extension agents increasingly serve as facilitators, assisting farmers to develop skills in problem analysis, problem solving, and management. Participatory methods are inclusive and foster equal access to extension services and resources for women and ethnic minorities. They merge with participatory technology development, which taps indigenous knowledge especially relevant to sustainable agriculture.<sup>4</sup>
- *Increasing accountability to clients.* Increasing user influence over extension services is an element of the most recent extension reforms. Placing client representatives on advisory and management boards, involving farmers in setting program priorities, evaluating participation of staff and programs, and giving authority to farmers to approve work plans all help make extension services more responsive to farmers. Through demand-driven funding programs, the greatest accountability comes when farmers are given authority to set the agenda, select service providers, and hire and fire extension staff. These programs typically use mechanisms that enable client groups to propose development activities. Once the activity is approved, financing or

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<sup>4</sup> See the IAP, “India: A Decentralized, Market-Driven Approach to Agricultural Extension.”

other resources are transferred to the client group, which is then responsible for implementing the approved project with extension providers accountable to the client groups.

- *Working with client organizations.* Client groups of various types make extension services more accessible to small-scale farmers by providing economies of scale in service delivery and a mechanism for producers to express their demand for services. Working with client groups may enable extension programs to reach more farmers and rural households (increasing efficiency), facilitate participation in extension activities (increasing effectiveness), and develop human resources and social capital (increasing equity). The client group role may entail receiving services for organizational strengthening (client), facilitating delivery of services (partner), providing services to members (executing agency), or financing services (financier). Roles and potential differ markedly between small, informal extension contact groups and formal commercial organizations. Producer organizations are a main focus for agricultural extension, but women's and other community groups are also important partners. Investments are needed to strengthen client group capacities and develop mechanisms for effectively involving client organizations in extension and advisory services.

*Reforming government extension services.* Governments retain a key role in guiding the evolution of the extension system as a whole. Public extension services remain important for extension coordination even when most services are privatized or decentralized. Organizational arrangements will vary by country, and extension will be based in a department within the ministry of agriculture, in an autonomous institute, or combined with a research organization. Support is often needed for reforms to promote a pluralistic system, establish a coherent national strategy, manage for results, and decentralize extension program responsibilities. An important first step for program reform and new investments is the development of a national strategy for extension through broad consultation with stakeholders (box 3.4). Mechanisms for regular consultations and exchange of information among service providers must take place frequently at both national and local levels and depend on using the convening power of a government agency.

- *Decentralizing extension programs.* Decentralization reforms implemented in many countries offer opportunities for fundamental changes in the way in which rural extension services are provided. Transferring program governance, administration, and management to the local level facilitates user participation and cofinancing, enhances the response to local problems and opportunities, increases accountability to clients, and increases program efficiency. But these reforms are not easy. A comprehensive strategy for decentralizing extension services must ensure service quality, develop capacities needed at all levels in the system, and provide clear definition of the respective roles and responsibilities of local and national governments and user groups.
- *Managing for results.* Public extension agencies need to improve their focus on objectives and manage for results. This requires clear objectives and effective systems for monitoring and evaluating individual and program performance. Incentive

systems must be aligned with institutional objectives to reward individuals and programs that produce results in terms of overall social objectives.

### **Box 3.4 Development of national extension strategies**

The 1994 evaluation of World Bank support to extension emphasized the importance of basing extension investments on a sound strategy for a national extension system (Purcell and Anderson 1997). Such a strategy requires, among other things, thorough analysis of:

- Farming systems and production and social conditions.
- Available technologies and management innovations that can increase productivity, including the productivity of research and other programs to provide future innovations.
- Market and economic trends for key commodities.
- Government commitment for funding and human resources for extension.

A national extension strategy should:

- Prioritize target groups and areas and plan differential program approaches appropriate to their needs and opportunities.
- Integrate public and private sector activities and traditional and modern communications technologies.
- Plan activities at a level of sophistication and intensity supportable with available human resources.
- Maximize cost recovery and farmer ownership of extension programs.
- Ensure that technology generation/adaptation and information support services are in place.
- Incorporate plans for staff training in technical, economic, social, and communications skills.
- Accept that extension program formats are not permanent but must change in response to circumstances.
- Incorporate comprehensive monitoring and evaluation systems.

Source: Purcell and Anderson 1997

*Improving the quality of services.* While all of the reforms discussed earlier aim to improve the relevance and quality of extension services, additional investment is essential to improve the capacity of service providers to deliver advice and information to farmers. The quality of extension services depends on a range of technical and support services which must often be provided through public funding agencies even to private extension providers. Key areas include:

- *Improving technical support, such as research-extension linkages.* Linking service providers to sources of innovation and technical support, including national research programs, is essential if they are to have technically sound advice to offer clients. Technical support generally requires some in-house technical specialists (if the

service provider is large enough) in addition to effective linkages to other programs. Extension programs should be structured so that farmers, agribusinesses, and various extension providers can develop demand-driven linkages with researchers, private firms, and universities to identify access relevant technical support as needed.

- *Strengthening training of extension agents.* Training is a critical need and often inadequately provided in extension programs. Improvements are needed in both pre-service (university) and in-service training for extension agents. Training programs need to emphasize new extension concepts and methodologies, as well as expand attention to marketing, management, environmental issues, and the development of farmer and other client organizations. For sustainable and long-term development, investment in practical and well-rounded curricula for university programs can provide a base for training the future generation of extension agents.
- *Improving development communications support.* Not enough attention has been given to packaging information and training materials through brochures, radio and TV programs, posters, demonstration materials, videos, and technical reports that help convey information and knowledge to farmers and extension workers, including input suppliers and staff of financial service agencies and NGOs.
- *Establishing quality control systems.* Quality control becomes increasingly important and difficult with the move to multiple service providers. Standards can vary within decentralized programs and between different providers, who, as with input suppliers, could have vested interests contrary to those of the farmer. At a minimum, publicly funded services should provide a source of unbiased information for farmers. Controls on private extension and information services are difficult to enforce and problems are probably best handled on a case-by-case basis. Accreditation programs and registries of qualified service providers are useful in many cases and can be maintained by the government or an appropriate private sector group.

*Supporting the Millennium Development Goals (MDGs).* Increased extension support is needed to achieve the MDGs, especially as they relate to poverty reduction, gender equality, and environmental conservation.

- *Poverty targeting of investments.* Poverty reduction and environmental objectives are often best met through extension investments that increase overall agricultural productivity growth that generates employment opportunities and reduces food costs. In most cases, additional poverty-targeted interventions (for example, targeted by geographic area, commodity, or production system) will be needed to reach poor people, women, and indigenous and minority groups. Poverty targeting requires priority setting for allocation of public resources, designing and evaluating programs to meet different client needs with emphasis on empowering the rural poor, building individual and institutional capacity, and developing demand for services where there has been little in the past. Services frequently need to address social and organizational constraints to innovation, facilitating rural financial services, obtaining secure land tenure, improving management of community resources, and focusing on issues formerly considered outside the ambit of extension, such as HIV/AIDS education and access to health, education, and social programs.

- *Promoting gender equity.* There is an increasingly better understanding and appreciation of the roles, rights, and responsibilities of both men and women in agricultural production and of the greater constraints faced by women. Many examples of extension programs designed with a gender focus now exist, and the gender message has been widely disseminated. However, greater attention still needs to be given to gender analysis, gender-sensitivity training, the targeting of women farmers, increasing the number of women extension staff, and gender-sensitive monitoring and evaluation.
- *Promoting environmental conservation.* Intensification of production systems (for example, increased use of agrochemicals, land use changes, shorter fallow periods) requires extension systems to introduce measures to mitigate environmental degradation. All extension programs should incorporate promotional activities for environmental conservation and sustainable management of natural resources. Focused extension programs, often working with and through community groups, should promote collective action for natural resource conservation activities, such as watershed management, biodiversity conservation, and reforestation. General education campaigns are also required to raise public awareness of environmental issues. Because some environmental impacts are long-term and benefits often accrue downstream, user financing of such programs is not usually feasible.

*Expanding use of mass media and communications technologies.* The mass media has been underutilized by extension, and new communications technologies now offer opportunities to deliver a richer array of valuable information of value to farmers and rural households. Development communications and mass media like radio and print media have long been part of extension systems but have generally not received adequate attention or financing. New information and communications technologies (ICTs) can make production of mass media and development communications products more efficient and can provide higher-quality products that are more effective in delivering information and transmitting knowledge.<sup>5</sup> Many benefits from new ICTs, such as the Internet, computer systems, and telecommunications, will come from linking these to traditional communications media. This strategy would enable radio broadcasters, for example, to access global sources of information in preparing programs.

Advances in ICTs also provide extension systems with opportunities to deliver information services in new ways (FAO 2000). Rural telecenters, cellular phones, and computer software provide new sources of information for extension agents and farmers in ways that allow for interactive two-way communication. Private service delivery, cost recovery, and “wholesaling” of information—providing it to intermediaries (NGOs, private sector, press, and others) that will use it to provide services to farmers—are important strategies for expanding the use of ICTs in rural extension systems.

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<sup>5</sup> See the IAPs “Vietnam: Entertainment-Education” and “India: Rural Kiosks Provide Information, Knowledge, and Business Services in Andhra Pradesh.”

## Scaling Up Investments

Scaling up extension investments should be done within the context of widely shared national extension strategies. New approaches often will need to be piloted to develop local capacity and an understanding of extension reforms. Building new institutional arrangements and developing sustainable extension systems requires a long-term perspective and continuity in institutional and program development. When introducing reforms (for example, the contracting out of service provision), the evaluation of different country experiences should be an integral part of the planning and scaling up process.

Despite the trend toward greater Bank lending under Poverty Reduction Support Credits (PRSCs) and sectorwide approaches, extension investments for long-term institutional development will need to rely on specialized AKIS and increasingly on agricultural innovation systems promoting projects to build institutional capacity and address system issues in a comprehensive way. Funding of extension programs may increasingly rely on community-driven development (CDD) programs that allocate resources to communities and local groups to address their own development priorities. Although such groups initially tend to place priority on small-scale infrastructure, technical information provided by extension services is necessary to help communities plan, implement, and maintain investments oriented to income generation for sustainable poverty reduction.

The following Agricultural Investment Notes (AINs) provide additional guidelines to good practice in selected areas of extension system reform and development. Priority topics for future work in defining good practice in this area include steps to reform public extension agencies, the establishment of cofinancing and cost-sharing arrangements for extension, promotion of farmer-to-farmer extension services, the development of effective research-extension linkages, transitional arrangements for public extension, environmental extension services, and the use of ICTs in a cost-effective, innovative manner.

## Selected Readings

Asterisk (\*) at the end of a reference indicates that it is available on the Web. See Appendix 1 for a full list of Websites.

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This Overview was prepared by Gary Alex, with input from the Sustainable Agriculture (SASKI) Thematic Team of the Bank. Peer review comments were provided by David Nielson, Aleksandar Nacev, Matthias Grueninger, Jock Anderson, William Rivera, and Mary Hill Rojas. The overview was updated by Eija Pehu and Riikka Rajalahti.

## Contracting Extension Services

With the recognition of the limitations of public agencies in efficient and effective delivery of public services, a trend has developed toward increasing separation of functions of financing and delivery of public services. Governments typically must continue to finance many rural extension services, but provision of services is more commonly contracted to private advisory service firms, NGOs, universities, producer organizations, and other groups. Alternative arrangements assign procurement responsibility to central or local government or to clients themselves. Competitive procedures can improve the quality of services, make providers more accountable for results, and improve efficiency. Contracting allows for specialization and selection of service providers according to their individual competitive advantage.

Many countries established public extension services in the 1960s and 1970s to promote agricultural sector productivity and rural development. These public extension agencies often produced positive results in early years but soon encountered a range of common problems, including difficulty in measuring impacts, lack of political support, lack of accountability to clients, lack of financial sustainability, and poor links to sources of new technology (Feder, Willett, and Zijp 1999). Many systems were unable to respond to changing priorities, needs, and opportunities, partly owing to the lack of incentives and flexibility within public agencies for the efficient delivery of quality services to widely dispersed rural people.

Although the public sector will continue to finance (at least an important share of) the costs of extension programs, the increasing diversity of extension service providers will mean that delivery of services will often be contracted out rather than provided by civil servants (box 3.5). Potential providers could include combinations of the private sector, NGOs, farmer associations, universities, and other entities with the capacity to provide the services. Contracting out extension services makes it possible to take advantage of all of the talent and experience existing in the field but does not eliminate a government role which, in addition to funding, ensures quality assurance, oversight, and provision of training and information to contracted services providers.

Contracting systems that separate responsibilities for financing, procuring, and delivering extension services rely on diverse contractual arrangements that underlie four types of contracting: private funding for private services, public funding of publicly provided services, private funding for public service provision, and public funding of private service provision (outsourcing) (Rivera, Zijp, and Alex 2000). Of these, public funding of private service provision is the most common strategy for reform. In such systems, the state usually retains responsibility for establishing criteria for use of funds, quality control, and monitoring and evaluation, while private entities provide services, define specific objectives for each locality, train extension staff, develop appropriate extension methods, and conduct monitoring and evaluation studies.

### **Box 3.5 Chile: evolution of contracted extension services**

Chile's extension system, based on contracting private service providers, has evolved since its

introduction in 1978. Evaluations report positive results from contracted services, and there is no support for returning to a system of government service provision. Until 1983, the Entrepreneur Technical Assistance Program provided vouchers that farmers with potential for commercial development could use to purchase extension services. Problems with this system resulted in a series of reforms that have made the program more demand-driven, with farmer organizations proposing defined projects for commercialization and modernization of small-farm agriculture. Chile's experience indicates the need for contracted extension programs to evolve over time and to:

- Design different programs to serve different categories of farmers and different program objectives.
- Decentralize program design and contracting to regional and municipal (district) levels to expand farmers' participation.
- Expand market orientation and marketing services within programs.
- Provide good technical support services and training to contracted extension agents.
- Establish good evaluation and monitoring systems at the national level.

Source: Beynon et al. 1998; Cox and Ortega, forthcoming

Public contracting of private extension service delivery can involve national agency contracting (for example, Venezuela and Chile), local government contracting, and grants to client organizations to contract services (for example, Uganda). Contracted extension services are likely to spread as agriculture becomes more commercialized and competitive and as public budgets for agricultural extension services demand greater accountability.

## Benefits

Government contracting recognizes that, even situations in which public financing of extension is justified, private service delivery is often more efficient in serving clients. Contracting defines responsibilities and encourages clarity in objectives and outputs. In addition, it exploits the comparative advantages of different institutions and, consequently, improves the variety and quality of services. Contracting also provides opportunities for the development of the private sector in rural areas and offers other potential benefits (box 3.6). Extension programs implemented by the private sector are typically more operationally efficient, more accountable for their performance and results, and more flexible in promoting extension staff for good job performance and dismissing staff for poor performance.

### **Box 3.6 Outsourcing extension services**

#### Advantages

- Reduces permanent staff requirements and allows deployment of resources to high-priority areas.
- Allows for accessing providers with special skills to provide specific services.
- Promotes partnerships and working relationships with other providers.
- Enhances flexibility in responding to special needs of diverse clientele.
- Tests innovative and higher risk “new” systems.
- Increases provider accountability and forces more attention to financial management.

#### Disadvantages

- Institutional memory may be lost; some private providers may not pass on new skills and lessons learned.
- Increases the need for skills of contract negotiation, supervision, and monitoring performance.
- High initial costs (if not offset by staff reductions).

Source: Rivera, Zijp, and Alex 2000

Contracts make providers accountable for the quantity and quality of services to be delivered and introduce penalties or nonrenewal of contract if expectations are not met. Provision of services by a wider set of suppliers makes it possible to draw on the best available expertise to provide services to farmers. Competition among potential providers keeps costs down and establishes a market for extension services that should be sustainable as public funding is withdrawn.

## **Policy and Implementation Issues**

*Procurement agent.* Contracting mechanisms can involve different agents in procuring services, such as central, regional, or local governments. For example, Bangladesh experimented with a series of partnership funds for services as part of its extension innovation and reform process (box 3.7). Alternatively, producer or community groups can procure services directly with funding provided by public extension programs. This arrangement helps ensure that service providers are accountable to clients. Selecting the service provider, awarding the contract, and approving work plans are procurement functions that can be shared by client groups and different levels of government. Contracting arrangements should increase farmer participation in three areas: selecting extension providers, deciding the content of work programs, and assessing performance of extension providers.

### **Box 3.7 Bangladesh: extension partnership initiative funds**

In support of its new agricultural extension policy, Bangladesh established three partnership funds at different levels under the Agricultural Services Innovation and Reform Project:

- A Upazila (subdistrict) partnership fund provided US\$1,500 per year of flexible funding for each of the 640 subdistricts to use to promote the collaboration between public and private agencies in delivery of extension services through subdistrict partnership projects. These funds supported on average four to five small-scale projects per subdistrict.
- A competitive grants program in 12 districts financed district partnership projects implemented jointly by two or more service providers from the public or private sector.
- A national-level competitive grants program funded national partnership projects to build the capacity of smaller NGOs to provide quality extension services.

These partnership funds increased collaboration between service providers and increased acceptance of NGOs as legitimate extension service providers. Impacts and sustainability are yet to be determined.

Source: Authors

*Performance-based contracting.* Extension services are typically contracted on the basis of financing inputs needed for delivery of services. An alternative approach involves performance-based contracts that tie payment to outputs or delivery of services, such as the number of women farmers trained, the number of publications distributed or sold, or results and impacts such as increased production, reduced irrigation water use, or improved product quality. These results-based contracting schemes provide incentives to improve the efficiency and/or effectiveness of extension services, but they frequently encounter problems of measuring output and outcome quality, as well as problems with contract costing and negotiations. In these and other schemes, contract performance can also be evaluated by farmers who directly observe performance of service providers.

*Competitive contracting.* Contracts can be awarded on the basis of negotiations (often limited to contracts with client organizations or public sector agencies), or on the basis of competitive selection depending on the cost and quality of proposals. Competitive contracting procedures seek to improve efficiency and quality by instilling a private sector attitude of cost consciousness and results orientation, even in public institutions that are forced to compete to provide services. Program transparency and reputation are enhanced by fair and well-developed competitive procedures.

*Contracts vs. grants.* Contracting involves selecting a service provider to deliver defined services, whereas grant programs allocate resources on the basis of project proposals prepared by client groups or service providers. Either approach can use competitive or noncompetitive procedures. Competitive grants are often suited to research outreach programs (box 3.8). But the communities that need extension services the most are less likely to be able to prepare competitive proposals, provide cofinancing, demonstrate potential economic impact, and compete for projects.

### **Box 3.8 Kenya: competitive grants for research outreach**

In 2000, the Kenya Agricultural Research Institute (KARI), under pressure to ensure that its technologies reached farmers, embarked on the Agricultural Technology and Information Response Initiative to empower farmers to make technology and information demands on agricultural service providers. The initiative targets community-based organizations (CBOs) as beneficiaries or intermediaries (farmer organizations), facilitating members' acquisition of appropriate technologies and information. Grants cover acquisition of technologies (for example, planting material), exchange visits to other farmers who have already adopted the technology, visits by KARI staff, and other costs of observing, learning, and adopting technologies. Smaller grants are given preference over larger ones to expand the number of beneficiaries. The average grant is about US\$3,000. The initiative is now working with 178 CBOs to cover 11,835 farm families. Experience has been quite positive: an example of success is the Shaza Women's Group in Kwale District, which was able to multiply members' assets four times in 18 months.

Source: Gustafson 2002

*Transition issues.* Problems frequently occur in moving from service delivery by public agencies to contracted services, especially when there is opposition from extension staff worried about loss of employment or suspicious of private institutions' motivation and capacity. Reforms must be sensitive to and deal with such concerns and opposition. It is often useful to finance the costs of staff retrenchment, which may be combined with training and the reorientation of redundant agents to jobs with private service providers, which usually offer better salaries, support, and job satisfaction.

## **Lessons Learned**

*Program/contract management.* Experience highlights the importance of developing capacity to prepare terms of reference, negotiate contracts, monitor contractor performance and compliance, and exercise financial control. Program management skills are needed at the national level, but training and capacity building require even greater attention if contracting is done by local government or client groups. Contracting requires a collaborative relationship between agencies and a commitment by government to shift away from controlling resources and programs to monitoring and supervising contracts.

*Contractor certification.* Contracting requires a minimum established capacity within service providers to compete for contracts and deliver services—a major problem in some countries and in remote areas of most countries. A registry of prequalified service providers expedites contracting under government-financed contracting systems. Such a registry is ideally maintained by the private sector in a trade association, farmers' federation, NGO forum, agricultural extension society, or government agency. The registry must be managed in a fully transparent fashion and kept up to date.

*Quality enhancement.* Competition between service providers can discourage information sharing and good practice, and it can cause service providers to attempt to increase short-term profits by neglecting training and specialized technical support, both of which are necessary for enhancing the quality of services. Institutional arrangements and program funding allocation to quality-enhancing support services (training, technical

support, development communications) can exploit economies of scale to provide support to service providers and can emphasize national priority issues (gender equity, environmental conservation).

*Community contracting.* Contracted extension programs work best when community or producer organization (clients) are heavily involved in selecting extension agents, evaluating services, certifying agents, cofinancing program costs, contracting services, determining program content, and deciding how services are allocated. Such contracting is facilitated for cases in which there have been previous community-managed projects; there is some degree of social cohesion; community organizations have legal status; communities are responsible for program operations and maintenance; and there is provision for capacity building for community organizations (de Silva 2000). For situations in which these factors are lacking, contracting on behalf of the community by an intermediary may be warranted. Experience in Africa indicates that a facilitating professional NGO is crucial to the successful operation of user innovation funds for producer organizations (Collion 2001).

## **Recommendations for Practitioners**

Public financing for extension services contracts constitutes an investment in technical services for sustainable agricultural systems development. This requires political will for extension reform; capable service providers; clarity in institutional roles and objectives; and an effective demand for services. There can be no blanket prescription for designing such contracting systems, but the following recommendations should guide contracting programs (box 3.9):

- Programs need to clearly separate the functions of financing and service delivery with procedures and guidelines that maintain the integrity and objectivity of the contracting process. This effort will often involve a third party in the procurement (contracting) of services financed by public funds and delivered by private or other providers.
- Contracting procedures require clear terms of reference and deliverables for services, as well as a clear means of evaluating completion of contract requirements. This specificity helps in defining and organizing activities and avoids contentious disputes over completion of contract work.
- Service providers need good links to research and other sources of information.
- Contracted extension services should, as far as possible, involve competitive selection procedures. Competition complicates the selection process but introduces a rigor that is useful in defining plans.
- Whenever possible, contracting directly by clients is desirable. Even in cases in which this is not feasible, clients still need to have some role in contractor selection and evaluation.
- Contracting procedures must be sensitive to broader societal issues of equity, directing services to small and marginal farmers when appropriate and ensuring equal access to services by women, youth, and minority groups.
- Requiring some cofinancing by clients helps to ensure their desire for and commitment to using services. The level of cofinancing will often be fairly low,

perhaps 5-25 percent for small and marginal farmers; for larger farmers, a higher cofinancing rate can be required with provision for eventual graduation to full self-sufficiency.

### **Box 3.9 Potential investments**

- Costs of program and contract management units.
- Training and technical and legal assistance for establishing contracting procedures.
- Studies to establish program priorities and targets.
- Cofinancing of contracts for extension services.
- Training, development communications, and technical support for service providers.
- Training, orientation, and promotion of contracting programs for potential clients and service providers.
- Monitoring and evaluation studies and monitoring systems to assess performance and impact.

Source: Authors

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Asterisk (\*) at the end of a reference indicates that it is available on the Web. See Appendix 1 for a full list of Websites.

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# Decentralizing Agricultural Extension and Information Services

Decentralization reforms that are implemented as part of wider public sector reforms offer opportunities for fundamental changes in how rural extension services are provided. Transferring program governance, administration, and management to the local level facilitates user participation and cofinancing, enhances the ability to respond to local problems and opportunities, increases accountability to clients, and increases program efficiency. These reforms are not easy. A comprehensive strategy for decentralizing extension services must ensure service quality, develop capacities needed at all levels in the system, and provide a clear definition of the respective roles and responsibilities of local and national governments and user groups.

National extension agencies were organized to transfer standard technologies to farmers throughout the country. Over time, this mode of operation often proved inefficient and made it difficult for programs to be responsive to clients. Extension increasingly has been required to provide location-specific services to improve the management and efficiency of input use, conserve natural resources, support diversification and value-added production, respond to community- or farmer-specific interests, and provide nonfarm information services relating to poverty reduction. Decentralizing extension services helps to address many problems of extension by facilitating greater interaction with clients and improving the focus on local needs and opportunities.

## Global Trend Toward Decentralization

Even as national extension systems involve more groups or bodies, state and local governments have become more important with the transfer of responsibility for government services from the national to the local level. Decentralization reforms became widespread during the 1980s and 1990s, when governments pursued decentralization because centralized approaches to economic management and service provision had failed. Effective decentralization requires a combination of administrative, political, and financial decentralization (box 3.10).

### Box 3.10 Defining decentralization

Decentralization generally involves a mix of three reform strategies:

- Administrative decentralization is the transfer of authority over regional staff from the central government to regional or local governments.
- Political decentralization (or democratic decentralization) is the selection of local government officials by local election rather than by central government appointment.
- Fiscal decentralization is the transfer of responsibility for raising and spending program funds to lower-level government units.

Three additional reform strategies that are related to but distinct from decentralization are:

- Deconcentration: the central government dispersing staff responsibilities to regional

offices without changing the basis for authority and control. This is not true decentralization and can actually increase central control and influence.

- Delegation: the transfer of responsibility for public functions to lower levels of government or to other organizations, which implement programs on behalf of the central government.
- Privatization: government transfer to the private sector of managerial, fiscal, and decision-making control, while retaining regulatory authority.

Source: Authors

## Benefits

Decentralization provides the potential to respond more effectively to specific local needs and become more accountable to users. Some effective extension systems, such as those in the USA, Scandinavia, and France, have long been decentralized with responsibility devolved to local governments, often in conjunction with local producer organizations (box 3.11). Decentralization is generally expected to encourage local financing and ownership of programs, result in more efficient and equitable allocation of government resources, provide incentives for efficient service delivery, ensure lower-cost services, build local capacity, and respond more effectively to local needs.

Decentralized development efforts, such as CDD, offer the potential for increased community participation to ensure the inclusion of all groups of society in rural decision making, regardless of gender, age, class, or ethnicity. In addition to devolving control and decision-making power, these initiatives can help communities build skills (human and social capital) through education and training, as well as by expanding the depth and range of their social networks.

Decentralization offers opportunities to introduce other reforms, such as contracting out services, strengthening monitoring and evaluation, and improving management. Decentralization facilitates client participation in planning, cofinancing, implementing, and evaluating programs, and it also makes greater accountability possible by making program administration closer and more accessible to clients.

### Box 3.11 USA: a decentralized extension system

The U.S. Cooperative Extension Service is a successful decentralized system. The Cooperative Extension Service was established in 1914 with the objective of “extension education.” “Cooperative” refers to the cooperation between the federal, state, and county governments in organizing and financing services. The service worked closely with farmer organizations (Farm Bureaus) for many years and is financed by federal, state, and county governments, as well as state agricultural universities. The federal government provides financing, broad program guidelines, and reviews of program compliance. State governments define specific programs, provide cofinancing, coordinate local programs, and ensure auditing and reporting. State universities provide technical support and coordination; and county governments provide a share of the financing, guide local implementation, participate in the selection of personnel, and evaluate programs and personnel. Local volunteers from the community assist in implementation

and have been important in extension program development.

Source: Claar, Dahl, and Watts 1980

## Policy and Implementation Issues

Decentralization represents a fundamental restructuring of power and financial relationships and is rarely implemented without controversy. A number of key issues in planning such reforms must be addressed:

*Phased vs. abrupt reform.* Deconcentration is nearly always the first and necessary step in any process of decentralization. This puts staff from central administrations in closer contact with local people, problems, and conditions, and it also provides a channel for local interaction. Unfortunately, decentralization reforms frequently stop at this point, and central authorities often retain control over deconcentrated administrative structures. As a result, an important decision must be made about whether to phase reforms and risk getting stalled or implement total reforms at one time, recognizing the risk of serious program disruptions.

*Funding.* Fiscal decentralization is often seen as a way to reduce central government budgets by off-loading tasks that a central government can no longer finance, a practice known as “devolving insolvency.” Intergovernmental fiscal transfers or grants are usually needed to finance decentralized programs. Concern over local administrative capacity and accountability frequently leads central governments to impose controls that are costly to administer and that restrict local flexibility in managing funds. However, experience indicates that local governments are generally capable of assuming substantial fiscal responsibility. While grants from the central government are usually necessary to maintain programs, decentralization offers opportunities to introduce cost sharing by local government and users and increase total resources available for extension.

*Coordination.* Decentralization involves different institutions and levels of government collaborating in financing and implementing programs. Coordination is essential as program objectives, approaches, training schedules, implementation periods, and incentives vary between decentralized implementation units. There is also potential for overlap of programs in different areas, competition for staff, clients, and markets, and duplication of effort in providing support services, such as training and technical support.

*Level of decentralization.* Decentralization may involve a decision to decentralize authority to local governments or to local community groups. Devolving program responsibility to local communities fully empowers rural people but bypasses and weakens local government. Community collaboration with local and national governments in managing programs makes it possible to coordinate programs across a broader area, ensures that interests of the poor are represented, facilitates the scaling up of successful initiatives, and overcomes local and often male-dominated authoritarian enclaves.

### **Box 3.12 India, China, and Uganda: approaches to decentralized service provision**

India's National Agricultural Technology Project established Agricultural Technology Management Agencies in pilot districts to coordinate agricultural extension and rural development activities. The agencies, registered as civil societies to provide a degree of autonomy, are delegated responsibility for extension and are controlled by governing boards of stakeholders. They also receive guidance from farmer advisory committees established in production blocks, have administrative offices linked to state and national extension offices, and receive technical backstopping and training from regional research staff.

China's Agrotechnology Extension Center System, based on national, provincial, county, and township institutions, guides extension activities and provides technical support to township agrotechnology extension stations. These stations provide key services from more than 370,000 staff and 500,000 farmer technicians operating at the village level. Funding for each level of the system comes mainly from that level of government. Both are actively engaged in innovative strategies to broaden their funding base through fee for service arrangements, contracts with producers, input sales, and profit sharing with clients.

Uganda's National Agricultural Advisory Services Program represents an ambitious plan to decentralize extension services, scaling up from six pilot districts to national coverage by 2008. An autonomous board coordinates the program at the national level. Local farmer groups are represented in subcounty and district levels. Farmer forums approve project proposals submitted by farmer groups. Funding for projects comes from the program's fund, most of which is allocated to subcounty farmer forums.

Source: Swanson and Samy 2003

## **Lessons Learned**

Decentralization takes many forms, and there are various combinations of fiscal, administrative, and political decentralization. Reforms must be tailored to country-specific conditions (box 3.12). Privatization, deconcentration, and delegation initiatives can complement and reinforce an overall decentralization policy, but these do not constitute—and can in some cases work against—effective decentralization. Successful decentralization reforms require:

- Providing local men and women with substantial influence over local development activities and the local political system.
- Ensuring availability of adequate financial resources from intergovernmental fiscal transfers or grants and user payments to enable decentralized institutions to accomplish their tasks.
- Ensuring adequate administrative capacity of local units through training and infrastructure investments.
- Establishing reliable mechanisms, such as transparent planning, reporting and evaluation, and routine audits, for accountability of decision makers to local people.

Strategies for decentralization must be adapted to the local institutional environment, legal framework, political traditions, administrative structures, and social and agroecological conditions. Decentralized extension reforms can be appropriate for cases in which there is already a strong political decentralization in a country, but they should be undertaken with caution when decentralization is not yet well established (box 3.13).

Decentralization still requires the central government to retain responsibility for cofinancing, quality control, promotion, support services, and monitoring and evaluation. Clear division of responsibilities and capacity building at all levels is key to successful decentralization reforms. This process depends on a supportive national policy framework and a clear extension strategy within this framework (AKIS 2000). Over the short term, decentralization rarely reduces—and may increase—requirements for central government financing.

### **Box 3.13 Ghana: incomplete decentralization reforms**

In 1997, Ghana's Ministry of Food and Agriculture decided to decentralize operations to provide more responsive and effective services. Staff and budget were to be transferred from the ministry to 110 District Directorates of Agriculture. In 2002, they remained under the ministry because legislation to establish a local government service for the staff of district government units had not been enacted. Because extension staff have not yet been integrated and because specialized services have been disrupted, frustration has grown, reducing the impact of decentralization. Political commitment was essential to start reforms, but because of loss of commitment, implementation stalled. Agricultural extension cannot effectively decentralize operations without the framework of overall decentralization policies and structures.

Source: Amezah and Hesse 2002

## **Recommendations for Practitioners**

Before launching decentralization of extension services, investments in extensive planning, promotion, and training in new operational procedures are essential to sensitize staff to the changes and to the likely opposition from central agencies that lose influence because of decentralization. Extension strategies generally should (box 3.14):

- Decentralize service provision whenever possible, emphasizing user control over program planning, implementation, and evaluation.
- Provide for extensive planning, wide promotion of the rationale and principles behind decentralization, and training in new operational procedures, in addition to ensuring clear terms of reference for division of responsibilities among different levels of government.
- Provide adequate centralized support for decentralized services, especially for training, subject matter specialists, and the production of extension materials.
- Develop procedures for priority setting to reconcile central government financing and policy objectives with local people's priorities that emerge from the decentralized program governance.

- Provide for fiscal transfers from central to local government to finance decentralized services, structuring transfers to give users maximum influence over programs and promote institutional pluralism in service provision.
- Develop capacities in a range of public and private providers, such as local governments, executing agencies, and community or producer groups, and introduce competitive mechanisms that ensure the most competent institutions provide services.
- Establish effective systems to monitor and evaluate decentralized programs and ensure that the data are available at appropriate levels. Central monitoring should be sensitive to equity issues and the possibility that local elites may capture programs and exclude services to poor people, women, or minority groups.

#### **Box 3.14 Potential investments**

- Training and raising awareness for all staff regarding new procedures and rationale for decentralization.
- Development of new regulations and operating procedures.
- Equipment and facilities for local government agencies.
- Training and capacity building for client organizations and service providers.
- Fiscal transfers to local government.
- Central support services, including subject matter specialists, development communications and mass media, and training facilities.
- Monitoring and evaluation systems.
- National and local strategy development and priority setting, with participation of all stakeholders.

Source: Authors

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## Client Groups as Key Intermediaries in Extension

Client groups of various types make extension services more accessible to small-scale farmers by providing economies of scale in service delivery and a mechanism for producers to express their demands for services. Working with client groups may enable extension programs to reach more farmers and rural households (increasing efficiency), facilitate participation in extension activities (increasing effectiveness), and develop human resources and social capital (increasing equity). The client group role may entail receiving services for organizational strengthening (client), facilitating delivery of services (partner), providing services to members (executing agency), or financing services (financier). Roles and potential differ markedly between small, informal extension contact groups and formal commercial organizations. Producer organizations are a main focus for agricultural extension, but women's and other community groups are also important partners. Investments are needed to strengthen client group capacities and develop mechanisms for their effective involvement in extension and advisory services.

Past development programs seeking to work through producer or community groups have achieved varying levels of success. In the 1960s and 1970s, donor programs supported cooperatives, many of which failed (often spectacularly) for varying reasons, especially because of excessive governmental control. Rural development programs organized community groups to undertake a wide variety of activities, and agricultural extension services organized contact groups for technology transfer. Such local groups were often effective in facilitating service delivery and increasing client participation in programs, but many were "groups" in name only, with little organizational identity or cohesion and little independence. A study in India found that community user groups rarely perform as expected, and, although most group members felt group objectives had been achieved, participation was poor, little information was available to members on group activities, and sustainability relied heavily on project staff (World Bank 2002). Despite past efforts, few producer organizations in developing countries have developed as effective organizations with sustainable programs.

### Producer Groups and Organizations

In pluralistic extension systems, various client groups help to formulate client demands for services. Producer groups are the major focus for agricultural extension services, though other organizations, based on community membership, specific social or developmental objectives, or specialized client groups, such as youth clubs or women's organizations, can be equally important to extension programs. Rural producer groups fall generally into two categories with differing objectives and potentials, as well as differing extension needs (Rondot and Collion 2001).

*Community-based, resource-oriented groups.* These are generally small informal groups of farmers and rural people with diversified production systems. They require extension assistance for community organization, marketing, and collaborative management of natural resources. One such farmer grouping is the extension contact group organized for the convenience of extension service delivery. Other informal groups may be semipermanent, coming together for a specific purpose and dissolving when this has been

achieved, such as managing natural resources. These groups seldom evolve into formal organizations and, although they can assume varied roles in extension and information service delivery, their major strength is in serving as a contact point for extension.

*Commodity-based and market-oriented groups.* These are generally larger and more formal organizations, with more sophisticated needs for extension assistance in production and marketing, business planning, and development for specific products. These groups can play a wider role in extension because they are more likely to be able to define needs, cofinance service delivery, and coordinate extension and information activities.

Current trends likely to increase the importance of producer organizations and facilitate their involvement in extension include moves to decentralize government, better definition of the respective roles of the public and private sectors, more competitive markets, improvements in rural infrastructure and services, and better-educated producers. Future support for client organizations will be more effective if based on better understanding of issues involved in strengthening such groups and a more comprehensive strategy for organizational development and sustainability.

## **Benefits**

Extension systems face challenges in delivering information services to large numbers of rural people scattered over wide, sometimes inaccessible areas. Client organizations help extension “reach” members but, more important, they serve to organize demand for extension services. They enable members to participate in defining objectives and needs, provide feedback to help programs deliver more relevant services, become more accountable to clients, and establish a base for cofinancing and eventual self-financing of services. In working with client organizations, extension services build important social and human capital, empowering clients to analyze and resolve their own problems (boxes 3.15 and 3.16). As agricultural markets become more competitive and demand for information and services increases, there will be a growing need for more permanent, formal organizations to provide rural services.

### **Box 3.15 Norway: agricultural research/extension circles**

Norway’s agricultural research/extension circles are an example of farmer-owned, farmer-led extension services. About 25 percent of Norwegian farmers are circle members, paying annual fees and electing management boards. Circle programs combine extension and adaptive research and include field experiments, soil testing, farm policy analysis, information and advisory services, and promotion of agricultural communities. Priorities are established in membership meetings, with research ideas and guidelines obtained from the national university. Factors contributing to program success include farmer ownership and leadership, the combination of adaptive research and extension, fee-based membership, public sector financing, and adaptation of an existing institutional model.

Source: Haug 1991

### **Box 3.16 Malawi: National Smallholder Farmers' Association**

The National Smallholder Farmers' Association was formed in 1997 to provide services and promote the social and economic development of smallholders. It is financed through a government levy, member dues, user fees, and donor support, and its 96,000 members are organized in about 5,000 local "clubs." Groups of 5-10 clubs are federated into Group Action Committees organized into 32 separate associations.

Services are focused on marketing, using collective bargaining power to negotiate favorable transportation rates and market terms and prices, and providing assistance for feasibility studies, training, and technical and management advice. Associations work with traditional crops (tobacco, maize, cotton, and groundnuts) but are giving increased attention to higher-value and export crops (chili peppers, paprika, ginger, turmeric, and sesame). The associations have field staff and operate farm supply shops that serve as informal information centers.

Source: Walton 2002

## **Policy and Implementation Issues**

*Varied roles of client organizations.* Client organizations can convene members for disseminating information and training, contract extension services on behalf of members, provide input to program governance and priority setting, lobby government for extension services, or assume full responsibility for providing services to members.

*Market orientation.* Some special interest clients (for example, women's groups, environmental conservation groups) may continue to support extension systems due to personal commitment, but few producer groups will sustain interest if there is no direct economic benefit. For this reason, sustainable extension programs generally must support marketing activities or market-oriented agricultural production to generate the financial benefits that provide a basis for sustainability of the extension systems.

*Dual role for extension.* Extension services support clients through establishing client organizations and strengthening their programs and core management systems, in addition to providing technical and advisory services to promote innovation, increase profitability, implement projects, and develop linkages to other sources of assistance.

*Level of organization.* Producer organizations face a dilemma in terms of scale of operation. Community-based organizations (with typically 10-30 members) can achieve group cohesion and unite around common local objectives, but they lack economies of scale and political influence. National or regional organizations can be more effective advocates with government and achieve economies of scale in operations, but they may lose touch with the rural membership base. A strategy of linking community groups in a national federation seeks to combine these strengths (FAO 2001). West African experience reflects the varied possible roles of producer organizations in providing market-oriented advisory services (box 3.17).

*Equity concerns.* Many groups that are dominated by local elites do not truly empower producers or reach disadvantaged groups (Chamala and Shingi 1997). Ensuring

participation of women, minority groups, and the poor might require changes to organizational procedures to ensure that these groups are not excluded. If this fails, establishment of separate organizations might be necessary to provide equal services. Women's political voices can be strengthened by ensuring equality of opportunity to participate in organized governing bodies at the local, regional, national, and international levels, as well as by promoting leadership training for rural women and ethnic minorities.

**Box 3.17 West Africa: institutional arrangements**

A workshop in Bohicon, Benin, in 2001 reviewed the experience of 10 West African extension programs that provided management advisory services for family farms. Approaches varied by country and program, but each relied on some form of producer organization to manage services. The management advisory services evolved in response to farmers' need to compete in rapidly changing markets. Advisory services analyzed individual farm situations and opportunities and developed farm management capacity using management tools and decision aids that identify farmers' options. Producer organization arrangements to support these programs included a farmer organization that managed the system in Mali; cotton organizations managing systems in Mali and Burkina Faso; local farmer groups that managed centers providing services in Mali; and a farmer organization in Benin that contracted a private firm to provide advisory services to individual members.

Source: Faure and Kleene 2002

## Lessons Learned

*Institution building.* Extension services can work with producer organizations as full partners, representing members' interests. Achieving this goal requires patience and a long-term perspective. Donor support can strengthen client organizations and stimulate demand for extension, but donor funding carries the risk of undermining the long-term sustainability of the organizations (Delion 2000).

*Existing vs. new organizations.* Working with existing organizations is often more successful than starting new ones, especially if groups are formed by a project specifically to qualify for a special subsidy or benefit. In Brazil, such associations rarely survived beyond the subsidy period (Pieri et al. 2002).

*Group promotion.* Responsibility for promoting client organizations has often fallen to poorly prepared extension agents with little training or understanding of principles of group formation. Most extension programs need dramatic improvement in staff skills (social, legal, and business) for working with client groups, whether informal community groups or larger formal organizations.

*Accountability and advocacy.* Producer organizations are often seen as a mechanism for small-scale farmers to make public extension agencies more accountable and responsive and as advocates for continued program funding. Accountability is enhanced only if client organizations have real control over program resources and management. There are only a few instances of producer organizations effectively defending extension program funding, as in Venezuela (Carney 1996). Building effective organizations that can lobby

for and influence extension priorities will take time and possibly new organizational arrangements.

## Recommendations for Practitioners

### Box 3.18 Potential investments

- Technical assistance and training for government and stakeholders to develop a favorable policy and regulatory environment for involving client organizations in extension.
- Training and study tours for client group members and leaders.
- Technical assistance for participatory planning and implementation of extension activities.
- Multistakeholder forums for extension planning and evaluation.
- Market linkage development and market information services.
- Support for youth groups, women's groups, and ethnic and cultural minority groups.
- Cofinancing grants for client groups to procure needed services, including information and communication technology equipment.

Source: Authors

National extension strategies and program mechanisms will vary depending on types of producers/clients, local institutions, and local opportunities and problems. Extension agencies should consider options for working with client organizations in any program. Public support should be oriented toward empowering clients, organizing sustainable groups, developing human capacities, and encouraging participatory problem-solving through extension investments that (box 3.18) (Chamala and Shingi 1997):

- Define the role of client organizations, which depends on the type of client. Organizations of large-scale farmers and those producing cash crops are most likely to be able to assume full responsibility for organizing and financing extension services. Organizations of small-scale farmers with diversified production systems are likely to be effective partners in planning and implementing programs in conjunction with other service providers but will generally remain dependent on public financing for services.
- Carry out social assessments, including gender analyses, to gain a better understanding of the dynamics of client groups and their leadership and to assess the participation and benefit distribution by gender, age, ethnicity, and income level.
- Devote resources to building client organization capacity and increasing member participation in planning, implementation, cofinancing, and evaluation of extension programs. Extension programs need to emphasize training for client organization staff and members, as well as for extension service providers.
- Promote independence of client organizations, enabling them to identify extension needs, select service providers, and evaluate program performance. Channeling funding through client organizations to procure services, rather than providing them directly from public agencies or public agency contracts, strengthens organizational autonomy and influence.

- Plan for collaboration among client organizations, local government, the private sector, and producers in providing services.
- Encourage transparency in program operations so members are fully aware of program objectives, status, and finances. This may prevent the misuse of organizations by politicians.

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This Note was prepared by Gary Alex, with input from Pierre Rondot and the Sustainable Agriculture (SASKI) Thematic Team of the World Bank.

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# Mass Media and Communications Technologies in Extension

Extension systems have yet to exploit the full potential of mass media and communication technologies to improve rural people's access to knowledge and information. Development communication and mass media like radio and print media have long been a part of extension systems but have generally not received adequate attention or financing. New technological developments can make these function more efficiently and effectively and provide extension systems with opportunities to deliver new information services in new ways. Private service delivery, cost recovery, and wholesaling of information are important strategies for expanding the use of information and communication technologies in rural extension systems.

Communication is the essence of extension services. Extension services, both people and approaches, seek to provide rural people with knowledge and information. The information and communications technology (ICT) revolution provides new options for accessing information by providing it directly to farmers and rural households or to nonfarmer sources of information, such as extension agents, agribusiness, and other intermediaries. Most extension programs have yet to effectively integrate mass media and ICTs into systems for supporting extension staff. These technologies are likely to become increasingly important as extension systems try to provide information to a wider and more diverse client base.

## Information and Communication Technology in Extension Systems

ICTs offer opportunities to reach more people and to carry out various functions within extension systems more effectively and efficiently. ICTs can provide easy access to local or global information and knowledge and are simple channels for two-way communication. New technologies can give farm families better access to information and contacts and can be a major empowering resource. Key communication tools for improving extension services include:

*Development communication.* This is essential to extension services, providing easily understood information for electronic and face-to-face communication.

*Mass media.* This includes broadcast (radio and television), print (newspapers, magazines, and extension brochures), and other approaches, such as poster campaigns, traditional theater, and songs. Public extension services have been slow to realize the potential of mass media, but private firms use mass media effectively in advertising campaigns. Increasing rural literacy and basic education should make mass media communication more effective in reaching large numbers of small-scale farmers.

*Rural telecommunication systems.* These range from the pay phones to digital wireless phones and the Internet and are powerful tools for expanding the flow of information of all types and facilitating market transactions, changes in employment, competition,

emergence of new industries, and social transformations (Talero and Gaudette 1996). Phone communication enhances quality of life and makes working and living in rural areas more attractive.

*Information technologies.* These manage large volumes of information that can be used in planning, administering, and monitoring extension programs. Technologies such as remote sensing, geographic information systems, global positioning systems, and weather and climate forecasting generate knowledge that extension systems provide to clients.

## **Benefits**

New information technologies and the inventiveness of agricultural scientists, farmers, rural women, and entrepreneurs are leading to new mass media and ICT applications in agriculture. Communication technologies can help extension systems provide information better, cheaper, and faster. The ability of information technologies to manage large quantities of data enables these systems to provide new services. Desktop publishing, PowerPoint presentations, digital images, and lower-cost audiovisual hardware improve communication effectiveness. Computers and new software allow farmers, producer organizations, and extension agents to access information on a range of new technologies, markets, and other information from local or remote databases. These technologies may also provide new opportunities for participatory horizontal communication between individual farmers and/or farmer groups in the absence of effective extension and market information services.

ICTs and traditional mass media can help the farmer compete in the evolving knowledge economy where competitive advantage often depends on timely access to high-quality information. Changes in farming systems also require extension systems to provide more knowledge and information support as producers diversify to new crops, meet higher food quality standards, or adapt to greater resource constraints. Many benefits derive from linking new technologies with traditional media. Internet searches identify global knowledge resources for use by local print media; call-in Internet radio shows allow listeners to phone in questions that can be researched on the Internet before the results are then reported over the radio.

## **Policy and Implementation Issues**

In expanding use of ICTs, extension systems will need to address the cost and policy issues of reaching clients in rural areas.

*The digital divide.* In 1999, Latin America, Africa, and the Middle East accounted for only 4.2 percent of all people connected to the Internet. There were only 0.7 telephones per 100 people in rural areas of low-income countries, compared to 48.5 in rural areas of high-income countries (Hudson 1998). Rural areas are also much less connected than urban areas. Physical infrastructure is not the only factor: rural people are often less able to use ICTs because of lower education, skill levels, and incomes. Women have less access to ICTs than men. In selected developing countries, women accounted for 6-37 percent of Internet users. Women's lower access to ICTs is due to cultural and social

attitudes that restrict women's use of new technologies or that require seclusion of women; financial dependency on male family members; and fewer educational opportunities for women (Wete 1991).

*Cost effectiveness.* Public extension services can mainstream mass media in cost-effective extension programs. In Malawi, even in the early 1980s, direct extension agent-to-farmer services cost US\$21 per contact; a one-day farmer training course cost US\$4-5 per participant; a mobile film show cost US\$0.17 per farmer per hour; and a radio program cost US\$0.004 per listener per hour (Perraton et al. 1983). Advances in communication technologies have further reduced costs and opened opportunities for new and better applications of ICTs.

*Cost recovery.* Many extension services (market information and farm level advisory services) provide private benefits that should be paid for by users. Cost recovery is important in expanding rural access to information services. Revenue from advertising associated with information dissemination (radio or television advertising) or subscriptions (magazines, or Internet advisory services) offer opportunities for self-financing mass media services. Public extension agencies need to establish good business relations with private partners, either by selling advertising to private firms for government-owned media or providing high-quality information products for use by private sector publishers and broadcasters.

*Training and support.* Introducing computers and new communication technologies in traditional extension agencies can improve efficiency but can also have major implications for training and technical support costs, in addition to the initial hardware costs. Investments in curricula of training programs and staffing are needed to give extension service providers the capacity to use new technologies effectively and to link clients and sources of information.

*Policies and regulations.* Regulatory constraints may limit rural access to communication technologies. National and international regulations constrain expansion of local radio. Protection of telecommunications monopolies, restrictions on voice-over Internet protocol, and regulation of Internet use often limit rural access to ICTs. Extension programs can identify such policy constraints and raise them with national policymakers. Educating rural constituencies (producer organizations and agribusiness) about these policy issues can create a constituency for reform.

## **Lessons Learned**

The falling costs and ever-increasing capacity of ICTs, their ease of use and potential for wide coverage, and the entertainment value of cleverly packaged information and educational media present opportunities to mix different types of digital and traditional information technologies.

*Matching media to messages.* Radio and television reach many people quickly with simple messages. Print is good for getting detailed information to people. Interpersonal communication, group meetings, and demonstrations are best for teaching and developing

credibility. A range of media can be combined in an overall communication strategy, but this is something that public extension services often do poorly.

*Developing content.* The use of ICTs and mass media is not a one-time investment. There must be capability and commitment to continuous development of quality information and educational materials to supply clients through these media. Effective development communication requires active participation of intended beneficiaries and continuous assessment of their interests.

*Knowing the client.* Knowing audience characteristics, preferences, needs, interests, and access to media are critical to understanding the potential use of specific media, analyzing and targeting audiences, and designing media products.

*Institutional arrangements.* Support for development communication in public extension services is complicated by the number of government agencies requiring such services. Limited demand from any one institution often makes it desirable for extension services to contract out communication support to specialized agencies. This requires a recurrent budget item for communication support but avoids investment in costly equipment that may be underused and poorly maintained.

#### **Box 3.19 India: Info Village Project in Pondicherry**

The Info Village Project in Pondicherry, India, supported by the M.S. Swaminathan Research Foundation, has established village information centers managed by villagers. Farmers have been willing to pay for extension and marketing information from these centers. In one village, four women are managing a center effectively. They send and receive e-mails and faxes and download daily news from the Internet and display it on a Bulletin Board outside the info center. The Info Centers are highly user-friendly, demand-driven, managed by local people, and cater to a variety of information needs.

Source: MSSRF 2002

*Telecenters.* Rural telecenters (or telecottages) have efficiently provided rural people with access to ICTs, but the lack of financial sustainability and gender equality are often major problems. Generally telecenters work best when Internet access is part of larger information centers and linked to rural radio and other information services.<sup>6</sup> Telecenter networks are useful in exchanging ideas and good practice experience. Varying institutional arrangements are possible (box 3.19). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has produced a useful guide to establishing telecenters in Africa (Jensen and Esterhuyen 2001).

## **Recommendations for Practitioners**

Extension systems can use mass media and ICTs in three interlinked information subsystems for accessing and developing knowledge products, supporting intermediaries

<sup>6</sup> See the IAP, “Russian Federation: Using Information and Communications Technologies for Rural Information Services.”

and service providers, and linking rural people directly to sources of information and knowledge. Investments are needed so that public extension services can:

- Develop extension strategies that identify available communication resources; assess needs for communication; and determine the type of communication support needed. Many traditional uses of ICTs in extension are proven technologies that still need to be piloted and adapted to specific countries.
- Analyze information needs through knowledge, attitude, and practice surveys, including gender analyses, which can be conducted through rapid rural appraisals and do not need to be costly or lengthy.
- Expand the use of mass media, especially radio, to complement other extension services, and integrate the use of various media for distributing information.
- Establish capacity in development communication to package information for use in extension and advisory service programs, including provision for building capacity for local input of content and for supply and distribution of local material (box 3.20).
- Build into programs strategies that promote equal access and opportunity for the poor and disadvantaged groups, including women, to use mass media and ICTs.
- Assess telecommunication policies and regulations that might constrain rural access to information and communication services.
- Promote use of the Internet and establishment of self-financed telecenters.

Cost efficiency and practicalities dictate the need to develop multipurpose information systems that provide health, educational, cultural, and other information, as well as agricultural information. Extension programs can also achieve efficiencies by wholesaling public information services—packaging information and distributing it through electronic and other means for use by frontline extension service providers.

### **Box 3.20 Potential investments**

Expanding use of ICTs in rural extension systems will require investments in the 4Cs:

- Connectivity (equipment and infrastructure).
- Capacity building (training and institution building for use of ICTs).
- Content (preparation of materials and linkages for obtaining information and knowledge products).
- Conducive environment (policy and regulatory reforms to facilitate use of ICTs).

Source: Authors

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## Estonia: Transition to Private Extension Advisory Services

Since independence in 1991, Estonia has followed an open and liberal reform path in which agriculture is important to economic growth and export earnings. Before independence, agricultural production was organized in approximately 350 large state cooperatives, each managing some 3,500 hectares with about 300 employees. Assets of state and collective farms were privatized after independence, and the farm structure evolved toward smaller-size family farms. The agronomic advisory service before independence was highly specialized, serving state and collective farms and ensuring the delivery of centrally planned production targets. Advisors did not provide business- or market-related advice. After independence, new private farmers lacked business experience and needed advice on production techniques, business operations, and farm management.

**What's innovative?** Establishing a Private Advisory Services Development Fund and using different extension strategies, including the Internet, for different categories of farmers.

### Project Objectives and Description

The objectives of the agriculture project were to increase rural incomes and stimulate the rural economy. Project components included land reform, farm drainage rehabilitation, land use management, agricultural advisory services, food quality and veterinary laboratories, and project management.

The extension component targeted different categories of farmers using different extension strategies, depending on their information needs, purchasing power, and access to technologies and solutions. To make the strategies demand-driven and relevant, a National Agricultural Extension Task Force was created, whose members included farmers, advisers, and public officials. For two years, the group generated ideas, monitored developments, and formulated concepts and strategies. The group's function is continuing under an informal advisory concept group made up of major stakeholders.

Privately operated advisory services were intended to provide agronomic and farm business advice for the most commercially viable farms (about 3,700). The project established a Private Advisory Services Development Fund to support a demand-driven advisory service, which funded certified private advisers on a contract basis. Private advisers were trained in methodology and technical subjects, and an Association of Rural Advisers in Estonia was created. A system for certification of advisers was put in place under the Ministry of Agriculture, and only certified advisers qualify for advisory contracts that are partly subsidized by the Fund. Government subsidies for individual advisory contracts between farmers and advisers were to be gradually reduced over a nine-year period (from 90 percent in 1996 to 0 percent in 2004). However, phasing out of the subsidy has been delayed for a few years in response to slower-than-anticipated growth in farm incomes.

The middle category of farmers received public extension services through mass media, farmers' organizations, and information networks. The project supported publications from various agricultural institutions and it also funded a large number of group advisory sessions conducted by farmers and federation advisers or by private advisers in response to requests made by county councils and/or farmers' groups. In addition, the project supported the establishment of an Agricultural Information Coordinating Center (AICC) and an Internet-based agricultural information network connecting the farming community to rural advisers, the ministry, and other domestic and international resources for information. The central portal and Web site of the AICC (<http://www.epk.ee>) is maintained and continually updated under a contractual arrangement with the Foundation for Rural Development.

A large number of marginal farmers (about 6,500) need information on both farming and alternative employment opportunities. Rural Information Centers (RICs) in almost all communities, linked to the AICC, provide this information electronically. The project has supported the establishment of RICs with training for staff and provision of computers and office equipment. The information activity has strong links with other initiatives, including banks, insurance companies, and commercial companies promoting their services through the Internet. The ministry provides printed information for RICs and electronic information through the AICC.

## **Benefits and Impacts**

Over the project period, 13,572 private advisory contracts were approved. The number peaked at 2,894 in 1998 and then declined to 2,689 in 1999, 2,350 in 2000, and 1,410 in 2001. The number of active certified advisers participating in the scheme declined from a high of 189 in 1997 to 69 as of September 2002 (with 10 more waiting to be certified). Reasons for the decline include: the emergence of private input suppliers furnishing "free" topical advice; the establishment of private advisers who prefer to operate outside the state-supported system; and the increase in farmers' basic know-how and a subsequent decline in their need for advice. Most advisers have expertise in plant production (29 percent), animal husbandry (20 percent), or farm economics (36 percent), with only a limited number experienced in fields such as forestry, marketing, or business planning. About two-thirds of current certified advisers are part-time and hold other jobs as well (for example, university teachers, researchers, private farmers). Many of the advisers who left the advisory support system are employed with private companies.

Dairying is the dominant farming system and, with project support, has become quite profitable: average net farm incomes increased by an estimated 35 percent during the five years of the project. Farmers increased their knowledge in grain production and animal husbandry, and they adopted improved agricultural practices, especially in plant protection, animal nutrition, and fodder production.

There is now broad understanding and acceptance among farmers that advisory services have to be paid for by the beneficiaries. Annual customer satisfaction surveys, conducted in 1996 through 2000, showed very high levels of satisfaction with the advice given

(more than 90 percent), and more than one-half of the respondents indicated that they continue to buy advice.

## **Lessons Learned and Issues for Wider Applicability**

Government does not need to “own” the rural advisory system for it to be effective and efficient. The Estonian experience shows that an effective public-private partnership can satisfactorily meet the varying information needs of the rural clientele and can very quickly adapt to changing client characteristics and needs.

Internet-based information services are proving to be a cost-effective and efficient way to link rural populations in sparsely populated areas to the world.

Having a nationally agreed agricultural and rural policy and strategy in place is beneficial for designing a project targeted at national priority objectives.

Country	Estonia
Project Name	Agriculture Project (Agricultural Advisory Service Component)
Project ID	P008403
Project Component Cost	US\$5.3 million
Dates	FY 1997 – FY 2002
Contact Point	Gotz Schreiber The World Bank, 1818 H Street NW, Washington D.C. 20433 Telephone: (202) 473-4495; E-mail: Gschreiber@worldbank.org

## India: A Decentralized, Market-Driven Approach to Agricultural Extension

From the mid-1960s to the late 1980s, agricultural extension played a central role in disseminating green revolution technologies for major cereal crops, which significantly increased India's agricultural productivity and food security. By the 1990s, however, the increased supply of wheat and rice had reduced commodity prices and farm income, and India's supply-driven extension system could no longer respond effectively to the new challenges in agriculture. For example, although India had achieved food security, 20 percent of the population still suffered from malnutrition. There was a growing realization that *hunger is a money problem, not a food problem*, and that extension needed to focus on increasing farm income and rural employment. This was the impetus for two World Bank projects: the National Agricultural Technology Project (NATP) and Uttar Pradesh Diversified Agricultural Support Project. The NATP is described in this profile.

**What's innovative?** A decentralized, market-driven extension model increases farmer participation in setting priorities, makes extension more accountable to farmers, and focuses on diversification into higher-value, labor-intensive enterprises that generate employment and reduce poverty.

The T&V extension system was broadly implemented throughout India. Although it worked well in disseminating green revolution technologies for major cereal crops in irrigated areas, it proved much less effective in rainfed areas and had little impact on other crop and livestock enterprises. The T&V approach also substantially increased the size and cost of extension to state governments. Extension planning was increasingly dominated by top-down programs funded by the central government. Among other constraints, each line department had parallel and uncoordinated extension programs and staff; separate, top-down funding to each line department primarily emphasized input subsidies; weak linkages with research reduced the technical capacity of the extension staff; and funding was not available to address local problems and constraints.

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### Project Objectives and Description

The Innovations for Technology Dissemination component of NATP pilot-tested a decentralized, market-driven extension model that focused on: (1) organizing farmers around suitable and high-value crop, livestock, and other enterprises for which there was a ready market; (2) integrating extension programs across the line departments and coordinating research and extension activities at the district level; (3) involving stakeholders in decision making and making extension more accountable to farmers; (4) strengthening links with research to develop and test technologies for higher-value enterprises that would be appropriate for small-scale farmers and local agroclimatic conditions; (5) focusing on environmentally sustainable technologies, including integrated pest, soil nutrient, and water management; and (6) creating a range of public-private partnerships to increase farmers' access to markets, market information, and technologies for high-value agricultural enterprises.

The Project's institutional innovations included:

- A district-level Agriculture Technology Management Agency (ATMA), which coordinated and funded research and extension programs at the district and block levels.
- Block-level Technology Teams (BTTs), which included extension staff from each line department to create a single-window delivery system for new technologies.
- A Farmer Advisory Committee (FAC) within each block, composed of representatives from all stakeholder groups, to set extension priorities and review and approve annual block action plans (BAPs).
- Village-level Farmer Interest Groups (FIGs), organized to focus on the production and marketing of different high-value products for local, regional, national, and export markets.

To provide operational and financial flexibility, ATMAs are registered as independent societies under the Societies Registration Act. Their management structure provides for improved interagency coordination and accountability to all stakeholders, especially farmers. An ATMA's Governing Board includes the district collector as chair and the ATMA director as secretary, and membership includes farmer representatives from the block-level FACs, NGO and private sector representatives (input suppliers and rural banks) within the district, and heads of district line department and district research stations, especially the Krishi Vigyan Kendra (KVK). At the block level, FACs are composed largely of FIG leaders but include representatives of other stakeholder groups, including women and disadvantaged groups. Village-level FIGs work closely with the block-level FACs and BTTs in identifying needs.

ATMAs begin by working with the line departments and research centers within the district to carry out a participatory rural appraisal as part of developing a strategic research and extension plan for the district. An important part of the participatory appraisal is to identify *success stories* of entrepreneurial farmers who have supplied specific markets with higher-value products. These success stories are assessed in terms of their potential to involve significant numbers of small-scale farmers in these new enterprises. The resulting Strategic Research and extension Plan (SREP) is carefully reviewed, and if approved by the ATMA Governing Board, provides the framework for reviewing block action plans (BAPs) that are submitted annually by each BTT for funding by the ATMA.

The ATMA approach makes extensive use of *farmer-to-farmer* extension services, including exposure visits to see how FIGs in other districts/states supply different markets with high-value products and the use of experienced "farmer professors" who help with farmer training. ATMAs also form public-private partnerships with input suppliers, agroprocessors, or other buyers to organize on-farm demonstrations and farmer training and/or provide technical supervision in maintaining product quality.

## **Benefits and Impacts**

An independent evaluation documented the following project benefits: 1) more than 10,800 crop- or product-based FIGs were organized; 2) 700,000 farmers, including more than 100,000 women, directly benefited from these new extension programs; 3) more than 250 farmer-led innovations were successfully implemented; 4) strong public-private partnerships were formed, ranging from poultry marketing, organic farming, and the production, processing, and marketing of other high-value commodities to Information Technology (IT) kiosks operated in collaboration with block-level Farmer Information and Advisory Centers (FIACs); and 4) promoting eco-friendly, sustainable agricultural technologies, such as integrated pest management, integrated nutrient management, organic farming, and the use of water conservation practices, including well recharging and conversion to less water-intensive crops (vegetables, floriculture, maize, oilseeds, and pulses). All ATMAs have promoted microirrigation systems.

In addition to these institutional innovations and technological achievements, the following ATMA impacts have been empirically documented across all 28 project districts from 1999 to 2003: 1) horticultural cropping area increased from 12 to 16 percent; 2) oilseed crop area increased from 3 to 11 percent; 3) the production of herbs and medicinal and aromatic crop area increased from 1 to 5 percent; 4) the area planted to more water-intensive cereal crops (wheat and rice) declined from 55 to 47 percent, but yields increased by 14 percent (resulting in no appreciable loss in staple food production); and 5) average farm income in project districts increased 24 percent during this four-year period, in contrast with only 5 percent in nonproject districts.

### **Lessons Learned and Issues for Wider Applicability**

The use of FIGs to mobilize men, women, and young people around common interests, such as the production of flowers, fruits, vegetables, milk, fish and other high-value products, has energized both the farming community and the extension staff. Many FIGs have joined to form farmer associations or federations that can gain economies of scale in serving larger markets. Developing strong farmer organizations is a positive and necessary step in providing cost-effective extension services that will increase the income and employment of small-scale and marginal farm households.

The block-level FACs are operational in most project blocks, but rural women and other disadvantaged groups still need more representation. Internal conflicts continue between priorities set by the ATMA Governing Boards and the heads of the line departments in allocating central government resources. The BTTs are still learning how to work together in utilizing a farming systems approach with multiple funding sources.

Decentralizing a large, complex national extension system is not easy, but the Government of India appears to be moving toward this long-term goal. Based on successful pilot-testing of the ATMA model in 28 project districts under the NATP and the introduction of the ATMA approach in 37 additional districts under the Uttar Pradesh–Diversified Agricultural Support Project, the government is planning to scale up the ATMA approach to 187 new districts for a total of 252 districts in 29 states and 5 union territories during the current 10<sup>th</sup> plan period. The Government of India and the World Bank are working together to help finance this planned ATMA expansion.

The move from a long-standing policy of *food security* to a strategy that focuses on *agricultural diversification* aimed at increasing farm income and rural employment carries implicit risks for small-scale farm households that are expected to benefit from this approach. The ATMA director and other agricultural leaders within each district need to continually assess the district's comparative and competitive advantage in producing different high-value crops and products. There will be continuing instances of overproduction of commodities, which will result in falling prices; these problems cannot be avoided, but they can be mitigated by maintaining a diversified portfolio of commodities, products, and enterprises within each district and continuing to seek out new markets and opportunities. In the final analysis, the most critical output of this decentralized, market-driven extension strategy will be that farmers will learn new technical, managerial, and organizational skills that will be passed on to the next generation of rural people as they seek employment outside of production agriculture.

**For more detailed information on the ATMA approach,** see the Good Practice Paper prepared by J.P. Singh, B.E. Swanson and K.M. Singh, entitled “Developing a Decentralized, Market-Driven Extension System in India: The ATMA Model.”

Country	India
Project Name	National Agricultural Technology Project (Innovations for Technology Dissemination or ITD Component)
Project ID	P010561
Project Component Cost	US\$ 31.5 million
Dates	FY1999 – FY 2005
Contact Point	Paul Singh Sidhu The World Bank, 70 Lodi Estate, New Delhi 110 003, India E-mail: <a href="mailto:Psidhu@Worldbank.org">Psidhu@Worldbank.org</a>

## India: Rural Kiosks Provide Information, Knowledge, and Business Services in Andhra Pradesh

Rural poverty in Andhra Pradesh is multidimensional and complex. The government has not met the basic needs of the poor, resulting in poor access to water and sanitation, poor health and malnutrition, continuing illiteracy, a lack of marketable skills, violence, and crime. The lack of political freedom and participation of the poor has further alienated them. The entire situation has been exacerbated by slow growth in agriculture and limited diversification of the rural economy.

**What's innovative?** Rural kiosks operated by women's self-help groups provide income-generating, free, and client-oriented information, knowledge, and business services that have benefited poor rural households in numerous ways.

In response, the Andhra Pradesh Government developed its Vision 2020 for comprehensive human and economic development, which mainly seeks to improve rural livelihoods for marginal and small-scale farmers, widen access to nonfarm employment, improve community access to financial resources, and use recent advances in information and communications technology to reduce rural poverty.

### Project Objectives and Description

The Andhra Pradesh Rural Poverty Reduction Project aims to enable the rural poor, particularly the poorest of the poor, to improve their livelihoods and quality of life. Through the establishment of rural kiosks in selected project areas, information and communications technology was used to empower rural women, enhance skills, increase productivity, improve participatory decision-making, provide timely delivery of government services, and build new links between segments of the rural population.

Rural kiosks—which have been in operation only since 2005—nevertheless show good potential to help improve rural livelihoods. They are managed by Mandal Samakhya, a federation of self-help groups. Each kiosk caters to 1,000-3,000 households. The rural kiosk can be considered as an essential first step towards achieving a statewide networked economy, in which (1) the rural population has access to information for empowerment and development; (2) marginal farmers can obtain information to move up the value chain, such as information on markets, tools to improve productivity, and best practices; (3) localized content and interface is developed to meet the needs of various types of households with varying degrees of literacy; (4) domestic and global markets are brought closer to those making products and artisans making handicrafts; (5) information on employment opportunities is available; (6) the opportunity exists to develop a fully e-literate state, in which at least one member of each family is computer proficient.

The criteria for setting up a rural kiosk include: they must be owned and managed by Mandal Samakhya and operated by self-help groups; uninterrupted power supply; reliable telephone connectivity; easy access by rural households; and close proximity to a bank

(preferably walking distance). Based on these criteria, several steps were taken to set up rural kiosks. Two to four women from the self-help group were identified as having the aptitude and analytical abilities to work with local people to operate and manage the kiosks. These women received hands on-training in computer applications and software for collecting utility bills. A suitable location in a busy area was selected—usually one or two rooms that were rented, donated, or owned by the community—and rehabilitated with community support to ensure safety, power supply, and customer services. After the installation of the computer and related accessories, the community was informed about the services being offered by rural kiosk. Support and involvement was solicited from educational foundations, establishments, agriculture departments, farmer organizations, and others to provide content and learning materials. The kiosk was open for at least eight to ten hours each day to provide the advertised services, and feedback was obtained from customers about ways to improve and increase the scope of services. The self-help group members who operated the kiosk were provided with incentives and encouragement to ensure that they would provide services demanded by customers.

## **Benefits and Impacts**

The kiosks have benefited rural households in the following ways:

- Ease of paying electricity, telephone, and water bills—which is also a source of revenue for kiosk operators.
- Availability of market prices for agricultural products and commodities, which enables farmers to obtain better prices for their crops, avoid exploitation from intermediaries, and increase their incomes.
- Issuance of caste, income, and residence certificates, which eliminates the need to travel long distances and reduces occasions for rent seeking by government officials.
- Provision of digital photography and lamination services.
- Provision of computer classes to increase marketable skills among the unemployed, especially the young people, who have been able to find jobs as a result.

The income-generating services have helped make the kiosks financially viable. An investment cost ranging from about Rs175,000 (US\$4,000) to Rs247,000 (US\$5,600) per kiosk yields a net monthly profit ranging from Rs7,000 (US\$160) to Rs18,000 (US\$400), depending on the number of households served and the range of fee- and demand-based services offered.

## **Lessons Learned and Issues for Wider Applicability**

The main lessons learned include:

*Ownership and management* by motivated and enthusiastic women's self-help groups, eager to learn and provide client-oriented services, are essential for the sustainability of rural kiosks.

*Continuous training* for the kiosk operators in applications of information and communications technology is important.

*The selection of an appropriate location* is critical to increasing the client base. The location should offer potential to cater to the needs of local businesses, enterprises, temples, and other potential customers.

*Strong marketing links between rural kiosks and procurement centers* are important. Community-owned procurement centers have been established by the project to serve the poor producers and consumers who are at the bottom of the value chain, lack marketing skills, and are subject to exploitation by intermediaries. Linking the rural kiosk with the procurement center is essential for ensuring that information and knowledge services provided by the kiosks are used to obtain the most competitive prices for primary producers and avoid exploitation by intermediaries.

Over the last decade, the creation of a *large statewide network* of self-help groups and village organizations of the poor with links to commercial banks has laid the institutional basis for motivating these groups to adopt innovative programs, explore new frontiers, and take the associated risks.

*Strong leadership at the Andhra Pradesh State Government level*, with a vision to bring government services to citizens at minimal cost and a commitment to increase transparency, has been vital.

Do rural kiosks have wider applicability for promoting knowledge-based agriculture? Presently, the knowledge services provided by rural kiosks are limited to education in science and math for schoolchildren using CDs provided by Azim Premji Foundation and classes in simple computer applications. Collaborative arrangements are being developed between the Center for Sustainable Agriculture (CSA), National Institute of Agricultural Extension Management, and Acharya N. G. Ranga Agricultural University at Hyderabad for kiosks to provide easily understood information on nonpesticidal strategies for disease management in local language for landless, small-scale, and marginal farmers. These services could be expanded to include access to information and knowledge on various aspects of agricultural production or market opportunities as well as access to food and agricultural research databases such as AGORA, TEEAL, Compendium technologies, and Hinari.

The success of the rural kiosks has provided the basis for establishing about 8,600 rural kiosks in Andhra Pradesh through two large private operators. With the gradual addition of value-added services, rural kiosks could evolve into sustainable "Rural information, knowledge and services centers," which would provide a combination of fee-based and free services to the rural community to improve livelihoods. This vision is consistent with the evolving national plan to create a network of village knowledge centers in India.

<b>Country</b>	India												
<b>Project Name</b>	Andhra Pradesh Rural Poverty Reduction Project												
<b>Project ID</b>	P071272												
<b>Total Project Cost</b>	US\$276 million												
<b>Financing</b>	<table> <thead> <tr> <th>Source</th> <th>Amount (US\$millions)</th> </tr> </thead> <tbody> <tr> <td>IDA</td> <td>150.00</td> </tr> <tr> <td>Government of India</td> <td>60.00</td> </tr> <tr> <td>Local communities</td> <td>14.00</td> </tr> <tr> <td>Financial intermediaries</td> <td>52.00</td> </tr> <tr> <td>Total</td> <td>276.00</td> </tr> </tbody> </table>	Source	Amount (US\$millions)	IDA	150.00	Government of India	60.00	Local communities	14.00	Financial intermediaries	52.00	Total	276.00
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<b>Dates</b>	FY 2003 – FY 2008												
<b>Contact Point</b>	S. Janakiram, Consultant for the World Bank, E-Mail: <a href="mailto:Sjanakiram@worldbank.org">Sjanakiram@worldbank.org</a> ; and Parmesh Shah, Lead Rural Development Specialist, SASAR, The World Bank. E-mail: <a href="mailto:pshah@worldbank.org">pshah@worldbank.org</a>												

## **Russian Federation: Using Information and Communications Technology for Rural Information Services**

In the early 1990s, when the centrally managed economy changed to a market-based economy, Russian farmers and policy makers faced serious constraints to improving agricultural production systems. These obstacles included inefficient farm structures, lack of competitive markets, and an outdated information system designed to meet the requirements of a centralized bureaucracy. Strengthening and expanding agricultural information and knowledge systems was seen as a way of addressing a wide range of linked issues.

**What's innovative?** Regional agriculture and market information made available through a Web site and a computing network linking 28 regions, nearly one-third of all the regions in the Russian Federation.

In the past, the government used Goskomstat (State Statistical Committee) and Ministry of Agriculture and Forestry statistical systems in Moscow to generate information for managing the centrally planned economy. The privatization, deregulation, and decentralization of the economy fostered the emergence of private farmers, restructured farms, and agribusiness enterprises that require new statistical and information services to improve marketing decisions, such as opportunities to adjust production and marketing in response to changes in prices, demand, and supplies of agricultural commodities and inputs.

### **Project Objectives and Description**

The main objective of the market information development component of the Agricultural Reform Implementation Support Project was to make information and knowledge available to improve decision making by farmers, public institutions, and private enterprises. A central part of this effort was the development of a national market information system for collecting, processing, and disseminating market information on about 50 agricultural commodities and inputs. This information system would aid the agricultural sector in its transition from a centralized command economy to a market economy.

The information system was designed on the basis of pilot projects. Oblast (regional) offices collect and process information locally and from rayon (district) offices, and manage the database. A central Market Information Unit in the ministry draws information from commodity exchanges, Goskomstat, international sources, and databases at the regional level. The system consists of a Price Information Service for farmers, traders, processors, and consumers, and a Price Monitoring Service for government agencies and policy makers.

The project provided equipment, supplies, training, and technical assistance to the ministry and its departments at the regional and district levels. The ministry released the market information, initially as a public good, through television, radio, electronic, and print media, and it phased in the introduction of cost recovery through commercial information services. Between 1995 and 2000, the project established:

- An initial framework for developing the rural information and knowledge system needed during Russia's transition to a market economy.
- A computing network connecting 28 regions and more than 300 districts across Russia. This network provided agriculture and market information and a Web site (<http://www.aris.ru>) and included sections on price information, markets, and agricultural information.
- A modern press and video center in the ministry, using a variety of media to disseminate multidisciplinary material on agriculture and related topics to regions, institutions, and farm producers.

## **Benefits and Impacts**

The market information system is currently operating in 28 regions and about 300 districts across Russia (roughly one-third of Russia). It provides weekly and biweekly producer, wholesale, and retail prices on a wide range of agricultural products (by grade and quality, as well as prices for inputs, such as agricultural machinery, fertilizer, chemicals, and fuel). These prices are disseminated through the Internet, the Agricultural Reform Implementation Support Web site, answering machines, mass media, and on information boards in the ministry. Periodic market reports and analytical reports are produced and placed on the Internet. The services offered by system are now the main source of producer, wholesale, and retail prices used by agricultural producers, traders, banks, donor agencies, and others interested in entering the agricultural sector in Russia.

Econometric studies commissioned by the project show that the market information system led to a substantial reduction in the variation of prices of 10 products covered by the information system within the participating regions (a 20 percent reduction in price variation). This indicates substantially improved efficiency of agricultural markets and increased access to market information by market participants.

## **Lessons Learned and Issues for Wider Applicability**

Access to relevant market and production information benefits farm and consumer households through reduction in regional and temporal variations in price and product availability. Effective and efficient rural information systems should:

- Build on the local culture, customs, and media and incorporate these into local information and knowledge-transfer project activities.
- Tailor information packages to local situations.
- Incorporate flexibility and scalability in technology hardware, using internationally accepted standards.

- Expect only partial cost recovery, recognizing that information can be a public good, especially in transition economies.
- Link various information technologies (for example using Web material to produce a series of newsprint reports to be distributed regionally).

The revolution in information and communications technologies provides a host of opportunities to improve farmers' access to market, technical, and other information needs. Most extension programs, and probably most rural programs, can incorporate new information technologies and systems to advance their objectives.

Country	The Russian Federation
Project Name	Agricultural Reform Implementation Support Project (Market Information System Component)
Project ID	P008811
Project Component Cost	US\$9.3 million
Dates	FY 1995 – FY 2001
Contact Point	Mark Lundell The World Bank, 1818 H Street NW, Washington, D.C. 20433 Telephone: (202) 458-4655; E-mail: mlundell@worldbank.org

# Uganda: Extension Decentralization, Privatization, and Reform

In Uganda, current real incomes of rural people and real agricultural GDP remain below levels of the 1970s, yet recent agricultural growth (more than four percent annually over the past 10 years) provides momentum for rural development. This growth has been accompanied by a profound reorientation of the public sector role in the agricultural economy and public institutional reforms. However, agricultural productivity is still low.

**What's innovative?** A decentralized, private extension system that allows farmer groups to contract their own extension service providers and researchers in technology development and marketing.

Low productivity is in part a consequence of inadequate communication among researchers, extension, and farmers. Farmers' needs, both agricultural and socioeconomic, such as the impact of HIV/AIDS on farming households, are not sufficiently reflected in research and extension efforts. Research and extension are overly dependent on donor funding and require a more stable institutional base of both financial and political support.

## Project Objectives and Description

The National Agricultural Advisory Services (NAADS) project, part of the Plan for Modernization of Agriculture, is based on strong government commitment to decentralization and private sector development. Its objective is to improve farmers' productivity and livelihoods by establishing a relevant and responsive contract-based agricultural advisory service. This effort involves transforming the existing public national extension service to a decentralized, largely farmer-owned, private advisory services system. Components of the project are:

- *Advisory and information services to farmers.* NAADS provides funding and training for initiatives from farmer groups, working in conjunction with local government, to contract for private agricultural advisory services.
- *Technology development and linkages with markets.* NAADS provides funds to farmers to contract researchers to work with them in their fields on technology and market development and adaptation.
- *Ensuring quality of services.* NAADS funds the development of a regulatory framework and service standards for service providers.
- *Promotion of private sector institutional development.* NAADS provides limited funding on a competitive basis for retraining and technical upgrading for service providers. In addition, the project provides a comprehensive package of benefits, including training, which will enable public sector extension providers to transition to employment in the private sector.

- *Program management, monitoring, and evaluation.* NAADS establishes and supports national and district-level entities to coordinate, monitor, evaluate, and administer the project.

Brochures, radio spots, and rural drama groups are used to disseminate information on the NAADS project. Market and commodity studies will provide a better understanding of the local economic conditions and help identify project priorities.

The project philosophy, consistent with the government vision, includes:

- *Independence and flexibility.* The NAADS board is a small and semi-autonomous unit. It is not housed within either the Ministry of Agriculture or the National Agricultural Research Organization.
- *Further decentralization.* Responsibility and funding for agricultural advisory services are being moved from the district level to the subcounty and farmer level.
- *Contracting out services.* The government has decided to give districts strong incentives to reduce the number of extension providers employed as civil servants, in favor of contracting the services of agricultural advisers.
- *Cost sharing.* The government has decided to institute, at a gradual and deliberate pace, the requirement that farmers and local governments pay part of the cost of the project.

## **Benefits and Impacts**

Sixteen districts, which cover a total of 224 subcounties, are in a pilot phase of the NAADS project. Organized into local groups, some 8,000 farmers participate collectively in decision making. The framework developed for extension services provides a strategic base for rural information and communication services.

Farmer control of resources provides and strengthens previously weak linkages to the research system, makes technologies more accessible, and facilitates the use of farmer innovations and local knowledge.

The private sector advisory partners have begun to register as companies and eventually extension services will be completely privatized. Current extension workers, who will soon become private sector service providers, are involved in retraining to match their skills with what is required by private sector advisory services.

## **Lessons Learned and Issues for Wider Applicability**

- Participation of local professionals (such as policy makers, researchers, and extension agents) and beneficiaries throughout project planning and implementation is critical.
- A responsive training program must be established for the staff of the extension system.
- Flexibility is required to meet the needs of a heterogeneous population of beneficiaries. When the delivery of extension services has been limited to one delivery mechanism, this goal has often been difficult to achieve. Enabling

subcounties and beneficiaries to contract with any qualified institution or entity to deliver advisory services will permit great flexibility in the types of delivery mechanism that might be employed.

NAADS is still in its pilot phase, but the project has attracted a great deal of attention and support in Uganda and from donors interested in sustainable approaches to extension and information service delivery in Africa.

Country	Uganda
Project Name	National Agricultural Advisory Services Project
Project ID	P044695
Project Cost	US\$107.92 million
Dates	FY 2000 – FY 2008
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## Venezuela: Contracting Decentralized Extension Services

In Venezuela, the existence of chronic rural poverty, despite abundant natural resource wealth, has created a sense of urgency for improving the productivity and competitiveness of agriculture. By the mid-1990s, it was clear that agricultural extension services were not capable of modernizing agriculture and promoting rural development. The government did not know how many extension agents it had or how much it was spending on extension. Several agencies provided extension services, but extension agents were rarely in the field. Small-scale farmers claimed that services never reached them, and larger-scale farmers felt the extension agents had nothing to offer. Research programs claimed to have many new technologies available, but farmers were not adopting them.

**What's innovative?** Decentralization and contracting of private extension services to improve accountability, flexibility, and responsiveness to farmers' needs.

### Project Objectives and Description

A fundamental premise for the Agricultural Extension Project was to ensure that extension services were accountable to clients, and this requirement is incorporated in its institutional structure. The decentralized program, focused at the municipal (district) level, relies on extension agents contracted through private firms and NGOs. This system provides flexibility and responsiveness to clients. Client participation is encouraged through establishment of Civil Associations for Extension (ACEs) at the municipal level. The ACEs, consisting of representatives of the municipal government and beneficiaries of extension services, coordinate the implementation of extension activities. Cofinancing by clients and municipal and state governments ensures that recipients value the services being provided.

The project specifically targets poor farmers and their families with small but viable farming operations and finances four component activities:

- Establishment of institutional structures to coordinate and administer the decentralized agriculture extension system. Among other expenditures, the project funded the development of national and state-level subject matter specialists.
- Extension services contracted out to private firms or NGOs for 180 municipalities.
- Training for private extension agents, members of ACEs and local government, and national and regional extension staff.
- Technical assistance and analytical studies to improve extension service planning and implementation.

Municipal agricultural extension services are provided in each participating municipality through contracted services of executing bodies (private firms, universities, and NGOs). Each municipal agricultural extension office prepares an annual municipal project outlining the objectives and the proposed activities to achieve each objective. This plan is

submitted to the Board of the ACE for approval, after which participating municipalities submit plans to the implementing agency—the Foundation for Training and Innovation for Rural Development—for approval of matching funds to cofinance the project. The foundation negotiates agreements with municipalities, relevant state governments, and ACEs in the municipalities for cofinancing contracted extension services and then employs competitive procedures to contract services from NGOs or private firms.

The costs of the municipal project are shared between four contributors: participating farmers, the municipal government, the state government, and the national government. It is expected that farmer contributions will generally be small to begin with but will increase over time.

Extension approaches are based on farmer preference, the results of an annual diagnostic survey, and technical assistance available from subject matter specialists. Extension program design focuses on providing services targeted to small farmers in an effort to enhance social and gender equality. Environmental and natural resource conservation impacts of projects are given priority attention, and the project includes activities to increase the environmental awareness of farmers.

## **Benefits and Impacts**

Benefits from the extension project are increased awareness by farmers with a better understanding of their own extension needs, as well as increased visibility and credibility of extension agents. Farmers are now organized into 76 ACE groups, representing about 10,000 farmers. Countrywide, 492 extension agents deliver services to 45,000 clients (not all clients are members of the ACEs) in 123 municipalities.

Program monitoring systems indicate that there has been wide adoption of the innovations introduced by the extension teams, with more than 4,000 innovations adopted in participating municipalities. While impact evaluations are being undertaken, demand from municipalities to participate in the program now exceeds the resources available to the program.

Nearly 25 percent of extension agents are women, and extension services for women have emerged as an important part of the overall municipal extension program.

## **Lessons Learned and Issues for Wider Applicability**

Contracting extension service delivery from private firms and NGOs is becoming more common and is an effective way of enhancing accountability to clients, which is an important part of any service. Using existing or creating new social mechanisms is an effective way to make service providers more accountable to clients.

The project has already attracted considerable attention and has had visits from delegations from several African and Latin American countries that are also considering extension service reforms. A regional workshop held in 2001 provided an opportunity to share Venezuela's experience with other countries in the region.

Project Country	Venezuela
Project Name	Agricultural Extension Project
Project ID	P008222
Project Component Cost	US\$79.0 million
Dates	FY 1996 – FY 2004
Contact Point	Matthew McMahon The World Bank, 1818 H Street NW, Washington, D.C. 20433 Telephone: (202) 473-8586, E-mail: <a href="mailto:mmcmahon@worldbank.org">mmcmahon@worldbank.org</a>

## **Vietnam: Entertainment-Education to Reduce Pesticide Use in the Mekong Basin**

Many rice farmers in Vietnam use high fertilizer rates and apply more pesticides than necessary. These practices might stem from the perception that high levels of inputs and pest-free conditions are essential for high yields. Yet high fertilizer rates generally favor pest and diseases and prompt higher pesticide use. Farmers spray insecticides early in the crop season to control leaf feeders, which generally have little effect on yield. These sprays disrupt natural biological control mechanisms (the ecosystem's "immune system"), which in turn increases the risk of pests and of more pesticide use later in the crop cycle.

Research has shown that a large proportion of rice farmers' pesticide use can be reduced. Many of the chemicals are hazardous to human health as well as detrimental to the environment, disrupting natural biological control mechanisms and promoting secondary pests, such as the brown planthopper. For instance, in the first 40 days of the crop cycle, sprayed fields can produce 56 million more pests and 14 million fewer predators per hectare than unsprayed fields. Because farmers' decisions to spray are caused mostly by loss aversion, biased beliefs, and local peer pressure, mass media can effectively modify the cognitive heuristics of decision-making and change farmers' practices.

*Chuyen Que Minh* (My Homeland in Vietnam), a soap opera designed to communicate integrated pest management (IPM) principles and practices to rice farmers, was launched in Vinh Long Province on 7 July 2004. The story concerns a rice farming family in the province. Interwoven with the daily chaos, problems, conflicts, and happiness they face is information on such aspects of IPM as biological control, plant compensation, effects of pesticides on natural enemies, human health, and aquatic species. The first episode, broadcast over the Voice of Ho Chi Minh City (VOH) and Radio Vinh Long, featured the main characters in Mr. Hai's home on the anniversary of the death of his wife. The soap opera, which airs twice a week, has broadcast 105 episodes, of which 29 were devoted to encouraging farmers to reduce seed rates, fertilizer rates, and pesticide use in a media campaign called, "Three Reductions, Three Gains" (box 3.21).

In addition to the broadcasts, the Voice of Ho Chi Minh City organizes monthly competitions that have attracted more than 1000 participants. The drama series is now offered by four other provincial radio stations. In support of the radio drama, the provincial extension has established 14 radio clubs that meet monthly to discuss both the storylines and educational content of the previous episodes. The clubs help to build social and information networks in the villages.

### **Project Objectives**

The project aimed to develop and implement an education-entertainment (EE) approach to communicate pest and resource management information to rice farmers in the Mekong Basin and evaluate its impact as a means of enhancing social change in agriculture, environmental protection, and health attitudes and practices.

## Benefits and Experience to Date

Before implementing the project, an audience analysis was conducted in the area. About 49 percent of 600 farmers interviewed owned radios, while 93 percent owned TVs. About 68 percent tuned in to the radio for news, 49 percent for agricultural information, 18 percent for music, and another 18 percent for drama. The favorite radio listening times were early morning (0400-0700 h) and evening (1800-2200 h), and the most common station they listened to was the provincial radio station (87 percent). Agricultural radio programs were mainly informative presentations with highly technical content. No soap operas with agricultural content had been tried before in the area. Focus group discussions revealed that farmers found that radio programs are useful because they can listen to them while performing other chores. As to the types of radio dramas preferred, 53 percent said comedy, 28 percent crime, and 8 percent love stories.

The EE project motivated farmers to reduce insecticides by about 38 percent in Vinh Long Province. There were also significant changes in farmers' seed rate, nitrogen fertilizer use, and beliefs about resource management. An estimated 2 million farmers in the Mekong Delta were reached. Between October 2005 and June 2006, an additional 35 episodes will have been broadcast through VOH. The success of this Rockefeller Foundation-funded pilot project prompted the development of the Environmental Radio Soap Opera which won a World Bank Development Marketplace Award 2005 in May.

The drama has received more than 2,000 letters from its listeners. Five other provinces and one NGO (World Vision) have acquired broadcast rights from VOH. The drama, launched by the Minister of Agriculture, has gained national interest. About 20 radio clubs have been established in Vinh Long. The characters in the drama are now well known to farmers in Vinh Long, since a "Meet the Actors" day was organized.

The EE approach brought together biophysical scientists and radio broadcasting and extension professionals, which provided a platform for collaboration. A multistakeholder participatory process was used to build good partnerships. It leveraged support from provincial broadcast departments to air the episodes widely. The program contributed towards reducing farmers' exposure to pesticides, cutting down on costs of production inputs and increasing household incomes.

## Lessons Learned

- On-the-ground extension support is valuable in building and sustaining listenership. While the radio drama can inform and motivate, it lacks the face-to-face discussions, visuals, and written descriptions that are essential to improve practices and that extension support can provide.
- The establishment of the technical-creative group linkage is vital in an EE project. The technical group ensures the accuracy of the technical content while the creative group looks after the entertainment value of the drama.
- A radio listener club provides the group reinforcement needed for changing attitudes and behavior.

## Potential for Wider Applicability and Issues in Scaling Up

The EE strategy to facilitate social change has been successful in India, Mexico, the United Kingdom, Jamaica, Costa Rica, and several African countries. EE can be applied effectively to cultivate a new societal norm with regard to pesticide use by communicating IPM principles. It can also potentially be extended to other issues, such as health education (for example, HIV/AIDS) and resource and environment management.

### Box 3.21 Three Reductions, Three Gains

A media campaign called “Three Reductions, Three Gains” (“Ba Giam, Ba Tang”) was launched in Can Tho and Tien Giang Provinces in 2003 to motivate farmers to reduce seed and fertilizer rates and pesticide use. The project involved bringing together research and development partners, extensive farmer participatory experiments, getting local expertise to train extension staff and farmers, and working together with all stakeholders to plan and implement the scaling up initiative. A total of 4,000 posters, 70,000 leaflets, 100 cassettes of the radio drama, and 100 VHS/CDs of the TV drama were produced for distribution. In addition, complementary exhibitions, TV interviews with farmers, TV game shows, and village-level demonstrations and promotions were organized.

Monitoring surveys showed that in both provinces, farmers’ use of seed, nitrogen fertilizer, and pesticides changed significantly. Their seed rates dropped about 10 percent, nitrogen rates fell about 7 percent, insecticide sprays were reduced by 13-33 percent, and the proportion of farmers using insecticides declined by about 11 percent. These practices were supported by changes in attitudes that favored high inputs. The campaign reached 70 percent of farmers in the target sites, resulting in bumper crop and profits (about US\$58 per hectare) for farmers in the Mekong Delta in 2003. The campaigns in Cantho and Tien Giang had significant multiplier effects.

In July 2004, the Ministry of Agriculture and Rural Development attributed the increase in farmer earnings to Three Reductions and awarded the project the 2003 Golden Rice award. On February 18, 2005, the minister of agriculture signed a policy paper urging all provinces to adopt “Ba Giam, Ba Tang” and created a national committee to develop nationwide implementation plans. In December 2005, the Can Tho Government awarded “Ba Giam, Ba Tang,” the Best Innovation Award for bringing increased earning to thousands of farmers and reducing environmental pollution.

Source: M. Escalada (International Rice Research Institute)

Project Country	Vietnam
Project Name	Using Entertainment-Education (EE) Approach to Motivate Rice Farmers to Reduce Pesticides in the Mekong Basin
Project ID	Not applicable
Project Component Cost	Rockefeller Foundation: US\$300,000
Dates	FY 2003 – FY 2005
Contact Point	K. L. Heong, International Rice Research Institute (IRRI) <a href="mailto:k.heong@cgiar.org">k.heong@cgiar.org</a> Deputy Head and Senior Scientist, Entomology Monina Escalada, IRRI <a href="mailto:m.escalada@cgiar.org">m.escalada@cgiar.org</a> , International Research Fellow
Implementing Institution	International Rice Research Institute
Partners	Ministry of Agriculture and Rural Development, Government of Vietnam; Voice of Ho Chi Minh City; Can Tho University; provincial radio stations; Cuu Long Rice Research Institute; provincial governments; Rockefeller Foundation; Swiss Agency for Development and Cooperation (SDC)