



# 3

## INVESTMENTS IN AGRICULTURAL EXTENSION AND INFORMATION SYSTEMS

105

**G**lobally, ministries of agriculture, universities, and the private sector employ more than 600,000 extension agents (Swanson, Farmer, and Bahal 1990). In the past, extension services, largely public, were equated with the transfer of agricultural production technology in pre-determined “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 (agriculture, marketing, social organization, health and education) needed by rural people to better manage their agricultural systems and livelihoods. This module seeks to summarize principles and good practice for investments in building effective and sustainable extension systems.

### **RATIONALE FOR INVESTMENT**

The success of rural development programs depends largely on decisions by rural people on 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 valuable but often high (see box 3.1). 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 they 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 health care and nutrition, consumer products, and government and other pro-

grams. Many farmers want to stop farming (or because of lack of competitiveness will be forced to) and will seek information, education, and alternative skills to prepare them for new employment.

Extension services make significant contributions 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, harvest of fuel wood, and other products, 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 billion in direct support for extension, while mobilizing another US\$2.5 billion from governments, beneficiaries, and other sources (see figure 3.1). This Bank financing has fostered recognition of the importance of extension and has shaped development of many national extension systems.

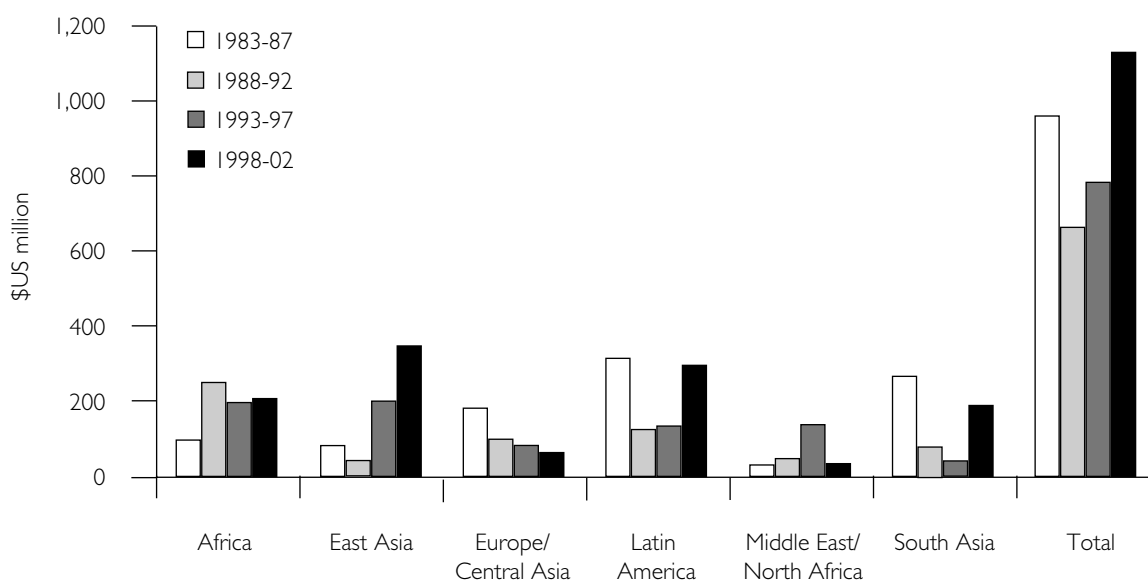
In the past, the World Bank was often associated with Training-and-Visit (T&V) extension, a system popularized in the 1970s and 1980s to address severe management deficiencies in existing extension services. T&V proved effective in specific circumstances in which standard-

#### **Box 3.1 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). But methodological problems are daunting and rates of return are highly variable for even the same program, such that there is a considerable need for additional evaluation of extension impacts.

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

**FIGURE 3.1 TRENDS IN WORLD BANK LENDING FOR EXTENSION PROGRAMS, FY83-FY02**



Source: World Bank Internal Documents.

ized 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, nongovernmental organizations (NGOs), and producer organizations, as well as a more inclusive approach to women, indigenous peoples, and poor people (Clever 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. The farmer is a key source of innovation—a concept reflected in a simple knowledge triangle (see figure 3.2). Key to the concept of the agricultural knowledge

triangle is the realization that improving rural productivity, social equity, and competitiveness requires effective and efficient agricultural knowledge and information systems (AKISs) that “link people and institutions to promote mutual learning and generate, share, and utilize agriculture-related technology, knowledge, and information” (FAO/World Bank 2000). Such a system integrates farmers, agricultural educators, researchers, and extension workers to harness knowledge and information from various sources for better farming and improved livelihoods.

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. How this market functions depends on the institutional and policy environment for innovation and 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,

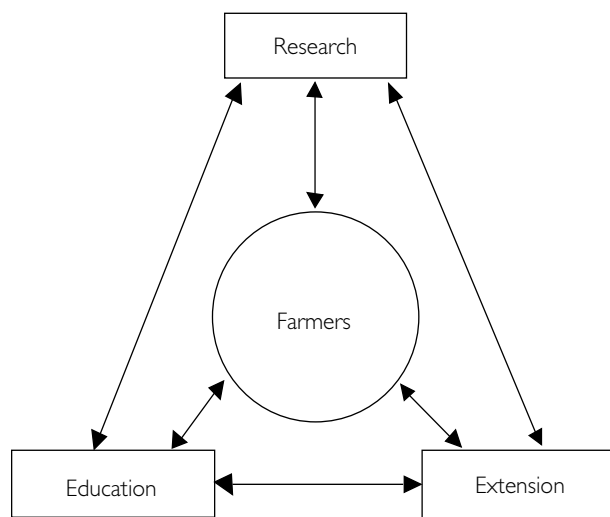
weaknesses, and motivations. This framework underlies the guiding principles for investment in extension and information systems (see box 3.2) (FAO/World Bank 2000).

### FUTURE DIRECTIONS FOR LENDING

Future investments must recognize a diversity of clients and client needs, and varied approaches for technology transfer, advisory services, facilitation, educational, 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 extension systems that are consistent with FAO/World Bank principles for effective AKISs, investments are needed to better define public sector roles, enhance financial sustainability, strengthen ability of clients to express demand for services, support extension system reforms, improve quality of services, address key poverty and environmental issues, and exploit potential of mass media and communications technologies.

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 of the farmers’ failure to recognize benefits from alternative production and marketing options; because farmers have limited purchasing power; or because they are not organized to access services. Second, supply is constrained because there may be few individuals or institutions capable of providing technical services or limited opportunity for private firms to appropriate benefits by charging for provision of information. The characteristics of specific services influence whether these 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

**FIGURE 3.2 AGRICULTURAL KNOWLEDGE TRIANGLE**



Source: FAO/World Bank 2000.

### Box 3.2 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.

(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 frequently overlap, 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 communications programs in which economies of scale/scope exist, and promotion of the rural extension and information system as a whole. In general, the share of public sector in the funding of extension services will decline with the transition to commercial

**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 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 info. (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

Note: The term "private" includes farmer organizations.

Source: Authors.

agriculture. For low income countries, public funding and other roles of the public sector may continue to be critical for many years.

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>1</sup>

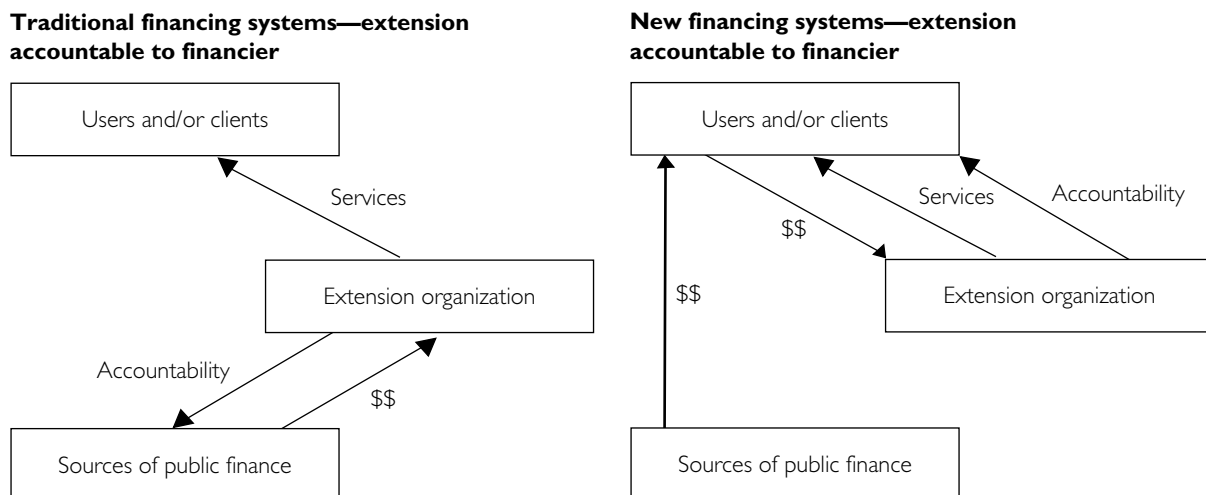
**CONTRACTING FOR EXTENSION SERVICES.** There is growing recognition that, even in situations in which public financing of extension is justified, private service delivery is often the more efficient way to serve clients. Contracting strategies for extension services take many approaches to the division 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 (see figure 3.3). Public financing of contracted extension and informa-

tion services represents an investment in public goods knowledge for smallholders, as well as support for development of a pluralistic extension system and extension services market.<sup>2</sup>

**DEVELOPING SUSTAINABLE FINANCING MECHANISMS.** Cost recovery is important to expand 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 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 percent to 20 percent is a reasonable initial target.

**FIGURE 3.3 ALTERNATIVE FINANCING MECHANISMS FOR EXTENSION SERVICES**



1. See the IAP, "Estonia: Transition to Private Extension Advisory Services"  
 2. See the AIN, "Contracting Extension Services"



- *“Downsizing” public extension agencies.* This is a difficult but an inescapable issue that many public extension agencies will face. Situations in which public funding and operating procedures do not allow existing staff to be used effectively and profitably, it is preferable to reduce the number of government staff. This might involve transfers to decentralized government units (but only if the staff can be used effectively there), early retirements with redundancy payments, or other arrangements, such as secondments to or contracting by NGOs and other development programs. Undertaking new extension initiatives without addressing existing problems of overstaffing undermines the chances for program sustainability.
- *Accessing other sources of funding.* Diversifying the funding base enhances financial sustainability of public extension programs. Sources might include environmental groups (ministries of environment, NGOs, and environmental services beneficiaries); special interest groups (women’s organizations, youth, and 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>3</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 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 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

3. See the IAP, “India: Participatory and Decentralized Agricultural Technology Transfer”



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.

**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 (see box 3.3). 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 program.* Decentralization reforms being 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

### Box 3.3 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 (M&E) systems.

Source: Purcell and Anderson 1997.

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.

IMPROVING THE QUALITY OF SERVICES. While all of the above reforms 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. 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 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, financial services agency staff, and NGO staff.
- *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 an a case-by-case basis. Accreditation programs and registries of qualified service providers are useful in many cases and can be maintained by 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 (such as by geographic, commodity, or production

systems) 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 M&E.
- *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 a feasible option.

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 a 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 messages and transmitting knowledge. Many benefits from new ICTs, such as Internet, computer systems, and telecommunications, will come from linking these to traditional communications media. This would enable radio broadcasters, for example, to access global sources of information in preparing programs.

The advances in telecommunications and information technologies 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 communications. Private service delivery, cost recovery, and “wholesaling” of information—providing it to intermediaries (NGOs, private sector, press, and others) which will use it to provide services to farmers—are important strategies for expanding use of ICTs in rural extension systems.

## SCALING UP INVESTMENTS

Scaling up extension investments should be done within the context of widely shared national extension strategies. Piloting new approaches will often be necessary 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, such as the contracting out of service provision, 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 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, extension services are necessary to assist communities plan, implement, and maintain investments oriented to income generation for sustainable poverty reduction.

The following series of 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, and environmental extension services.

## 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.

Alex, G., W. Zijp, and D. Byerlee. 2002. "Rural Extension and Advisory Services: New Directions." Rural Development Strategy Background Paper 9. World Bank, Washington, D.C.\*

FAO. 2000. "The Role of Information and Communications Technologies in Rural Development and Food Security." Workshop Report. FAO, Rome.\*

Feder, G., A. Willett, and W. Zijp. 1999. "Agricultural Extension: Generic Challenges and Some Ingredients for Solutions." Policy Research Working Paper 2129. World Bank, Washington, D.C.\*

Neuchatel Group. 1999. "Common Framework on Agricultural Extension." Neuchatel Group, Switzerland.\*

Neuchatel Group. 2002. "Common Framework on Financing Agricultural and Rural Extension." Neuchatel Group, Switzerland.\*

Rivera, W. M. 2001. "Agricultural and Rural Extension Worldwide: Options for Institutional Reform in the Developing Countries." FAO, Rome.\*

World Bank. 2002. "Extension and Rural Development: Converging Views for Institutional Approaches?" Workshop Summary, World Bank, Washington, D.C.\*

## REFERENCES CITED

Alex, G., W. Zijp, and D. Byerlee. 2002. "Rural Extension and Advisory Services: New Directions." Rural Development Strategy Background Paper 9. World Bank, Washington, D.C.

Alston, J. M., C. Chan-Kang, M. C. Marra, P. G. Pardey, and T.J. Wyatt. 2000. *A Meta-*

- Analysis of Rates of Return to Agricultural R&D: Ex Pede Herculem?* Research Report 113. Washington, D.C.: IFPRI.
- Ameur, C. 1994. "Agricultural Extension: A Step Beyond the Next Step." Technical Paper 247. World Bank, Washington, D.C.
- Antholt, C. 1994. "Getting Ready for the Twenty-First Century: Technical Change and Institutional Modernization in Agriculture." Technical Paper 217. World Bank, Washington, D.C.
- Beynon, J., S. Akroyd, A. Duncan, and S. Jones. 1998. *Financing the Future: Options for Agricultural Research and Extension in Sub-Saharan Africa*. Oxford: Oxford Policy Management.
- Cleaver, K. 1993. "A Strategy to Develop Agriculture in Sub-Saharan Africa and a Focus for the World Bank." Technical Paper 203. World Bank, Washington, D.C.
- Evenson, R. 1997. "The Economic Contributions of Agricultural Extension to Agricultural and Rural Development." In B. E. Swanson, R. P. Bentz, and A. J. Sofranko, eds., *Improving Agricultural Extension: A Reference Manual*. Rome: FAO.
- FAO. 2000. "The Role of Information and Communication Technologies in Rural Development and Food Security." Workshop Report. FAO, Rome.
- FAO/World Bank. 2000. "Agricultural Knowledge and Information Systems for Rural Development: Strategic Vision and Guiding Principles." AKIS Thematic Team. World Bank, Washington, D.C.
- Feder, G., R. Murgai, and J. B. Quizon. 2003. "Sending Farmers Back to School: The Impact of Farmer Field Schools in Indonesia." Policy Research Working Paper 3022. World Bank, Washington, D.C.
- Gautam, M. 2000. *Agricultural Extension: The Kenya Experience: An Impact Evaluation*. World Bank Operations Evaluation Study. Washington, D.C.: World Bank.
- Perraton, H., D. T. Jamison, J. Jenkins, F. Orivel, and L. Wolft. 1983. "Basic Education and Agricultural Extension: Costs, Effects, and Alternatives." Staff Working Paper 564. World Bank, Washington, D.C.
- Purcell, D. L., and J. R. Anderson. 1997. *Agricultural Research and Extension: Achievements and Problems in National Systems*. World Bank Operations Evaluations Study. Washington, D.C.: World Bank.
- Rivera, W. M., W. Zijp, and G. Alex. 2000. "Contracting for Extension: Review of Emerging Practice." AKIS Good Practice Note. AKIS Thematic Team. World Bank, Washington, D.C.
- Swanson, B. E., B. J. Farmer, and R. Bahal. 1990. "The Current Status of Agricultural Extension Worldwide." In B. E. Swanson, ed., *Report of the Global Consultation on Agricultural Extension*. FAO, Rome.
- World Bank. 2002. "Extension and Rural Development: Converging Views for Institutional Approaches?" Workshop Summary. World Bank, Washington, D.C.
- This Overview was prepared by Gary Alex with inputs 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.