MODULE 3

Investment in Extension and Advisory Services as Part of Agricultural Innovation Systems

OVERVIEW

Kristin Davis, Global Forum for Rural Advisory Services (GFRAS)
Willem Heemskerk, Royal Tropical Institute (KIT)

EXECUTIVE SUMMARY

Extension and advisory services are integral to the AIS, where now more than ever they play a brokering role, linking key actors such as producer organizations, research services, and higher education. This module looks at the history and current status of extension and advisory services and examines important topics such as pluralism, new roles for extension, new kinds of service providers, ICTs, and agribusiness.

For strong extension and advisory services, it is important to have coordination and linkage within pluralistic, multistakeholder AIS. Less traditional actors such as farmer organizations and agrodealers are important extension and advisory service providers who are vital to include in the design of investments and programs. Extension and advisory services must be ever-adapting to the needs of clients, and they must monitor and evaluate their services.

Perhaps the broadest challenge is the tremendous need for new capacities within extension. Throughout the developing world, evolving demands and new roles for advisory services in the wider innovation system will require investments in the capacity of individual extension workers and organizations for value chain approaches, in market-oriented extension, in group and organizational development, in agribusiness, and in mechanisms to share information (networks, platforms, and the like). Recent global developments require advisory services to focus on climate change, food security, and equipping rural people to deal with risk in general.

To better serve their constituencies and influence policies, advisory services need a stronger voice at the global and regional level. There is a need for evidence-based direction regarding investment priorities and programming options for agricultural advisory services within innovation systems. Policy issues related to pluralistic advisory services and extension include the changing roles of various extension providers, the comparative advantage for different providers in carrying out specific extension functions and advisory services, sustainability, and equity. Paradigm shifts—from the perception that research knowledge can drive innovation to the notion that change in the whole system is needed for innovation—must take place not only in the programs and the thinking of field staff but in the thinking of extension administrators and policy makers.

DEFINING AGRICULTURAL EXTENSION AND ADVISORY SERVICES FROM AN INNOVATION SYSTEMS PERSPECTIVE

Many definitions, philosophies, and approaches to agricultural extension and advisory services exist, and views of what extension is all about have changed over time. When agricultural extension services were implemented widely in developing countries in the 1970s, the needs, expectations,

Box 3.1 Extension and Advisory Services, Defined

In this module, extension and advisory services are defined as systems that facilitate the access of farmers, their organizations, and other value chain and market actors to knowledge, information, and technologies; facilitate their interaction with partners in research, education, agribusiness, and other relevant institutions; and assist them to develop their own technical, organizational, and management skills and practices as well as to improve the management of their agricultural activities.

Sources: Birner et al. 2009; Christoplos 2010.

perceptions, and tools that defined extension differed from those we have today. At that time, extension focused very much on increasing production, improving yields, training farmers, and transferring technology. Today extension is no longer viewed as an *agency* but as a *system* that is integral and central to innovation systems and that focuses on facilitating interaction and learning rather than solely on training farmers. CGIAR research on agricultural extension from an innovation systems perspective shows that it has a vital role to play in helping to strengthen capacities to innovate and broker linkages (Spielman et al. 2011). Box 3.1 explains how the term "extension and advisory services" is used in this module. Many other extension terms are included in the glossary for this sourcebook.

OTHER ROLES AND IMPACTS OF EXTENSION AND ADVISORY SERVICES

Besides being an important part of innovation systems, extension and advisory services contribute directly to economic growth, poverty reduction, and environmental well-being. Extension is an essential tool for dealing with the serious challenges facing agriculture—such as climate change, high food prices, and the degradation of natural resources—while helping to increase productivity and reduce poverty (Davis 2009). Other roles for advisory services therefore involve such diverse functions as providing market information, phytosanitary and epidemiological information, information on access to credit, or the facilitation of access to sources with this information (see also TN 1 and TN 4). Although it is very difficult to show the impact of extension services, and while evidence on the impact of some major extension models has been mixed, extension has proven to be a cost-effective means of increasing economic returns for farmers and has had significant and positive effects on knowledge, adoption, and productivity (see, for example, Birkhaeuser, Evenson, and Feder 1991). A CGIAR meta-analysis of 292 research studies found median rates of return of 58 percent for investments in advisory services (Alston et al. 2000; Dercon et al. 2008).

Apart from yielding significant financial returns, advisory services have also yielded positive social returns, particularly for women, people with low literacy levels, and farmers with medium landholdings (as shown by CGIAR research on extension by Davis et al. 2010b). Some extension programs, such as Farmer Field Schools (FFSs), have shown positive impacts on the environment and health (Praneetvatakul and Waibel 2006).

Despite calls for privatization, government must play a continuing role in extension (see Rivera and Alex 2004; Swanson and Rajalahti 2010). Although a variety of public and private services are available to farmers, many tasks of extension and advisory services have a public goods nature, including tasks related to regulation, quality control in the produce supply chain, the coordination of service provision, and natural resource management, as well as the provision of services to marginal groups, which are unlikely to access or afford private advisory services. The public sector's role is to fund the provision of advisory services (directly or through outsourcing) where demand for services is not being met, to support advisory services in addressing issues of long-term social and ecological sustainability (including food security), and to manage extension and advisory services (including quality control and knowledge management). The public sector can also provide incentives for nonpublic actors to play a greater role in providing services. In pluralistic extension systems, space can be created by the public sector to shift some public investment toward the management of extension systems and strengthening of private actors' capacities, although this shift can come about only when there is ownership within the public sector for such changes (Christoplos 2010; Spielman et al. 2011). Embedded advisory services in input supply services are widespread and increasing (IAP 1), but coordination by the public sector at the local level is needed to regulate and certify those services (to prevent them from providing biased information, for example) and to facilitate interaction between public and private service providers.

EVOLUTION OF EXTENSION AND ADVISORY SERVICES

The renewed prominence of agriculture on the development agenda has renewed the focus on agricultural extension and advisory services. At the same time, strong

demands for "more extension" have emerged from unexpected sources: the growing need to provide more climate information, increasing food security programming, the changing aid-for-trade agenda, value chain development programs, and comprehensive reform in global agricultural research for development. These demands imply a need to apply existing knowledge as well as a need to explore the relevance of changing extension forms within new development agendas, aid architectures, and institutional structures (Christoplos 2010, 6,9).

Despite the recognition that traditional approaches to advisory services are not always appropriate or effective, no consensus has emerged on what expanded extension services should actually include. Past mistakes will be repeated if there is not greater awareness of what has worked and what has not, what has proven sustainable and what has not, and who has accessed and benefited from different forms of extension services. Several publications discuss these issues at length (see, for example, Leeuwis and van den Ban 2004; Birner et al. 2009; Christoplos 2010; Hoffmann et al. 2009; and Swanson and Rajalahti 2010). Here we briefly examine the changing nature of extension investments over time, outline how and why advisory services have evolved, and present some of the newer approaches and their goals.

Changing investment levels

Extension investments have been made by donors, various governments, (international) NGOs, and the private sector. The type and level of investments varied considerably over the past few decades, especially as extension approaches rose and fell in popularity (box 3.2).

Many governments have over the years reduced their investment in extension and advisory services, leaving the services without operational resources and forced to

Box 3.2 Past and Current Investment Levels in Agricultural Advisory Services

Numerous donors, investors, private companies, and virtually all governments invest in extension, although the precise amounts of their investments are difficult to obtain. Global public investments in extension were estimated at US$6 billion in 1988, and currently two initiatives seek to update this estimate. The Food and Agriculture Organization (FAO) recently surveyed investments in nine agricultural sectors worldwide, including extension. With the International Food Policy Research Institute, FAO is also conducting a worldwide extension assessment that will provide a better idea of investments in physical and human capital, as well as other data, in the near future.

Bilateral and multilateral donors have invested in national extension systems and in extension approaches such as Farmer Field Schools and farmer research groups. World Bank lending to the agricultural sector more than doubled between 2006 and 2009, to US$5.3 billion in FY09 from US$2.9 billion in the baseline years 2006–08. Agricultural research, extension, and education services did not benefit from this increase nearly as much as other agricultural subsectors. Most of the additional lending went for productive infrastructure and policy lending. World Bank support for agricultural research, extension, and agricultural education has been around US$120 million per year during 2007 and 2008, with a significant share going to Africa. Annual lending to these subsectors has fluctuated widely, with lows of around US$100–126 million in some years (2003, 2008, and 2007) and highs of US$499 million in 2006, US$ 582 million in 2009, and around US$300 million in 2010.

World Bank investments in extension services often consist mainly of small investments accompanying investments in improved agricultural productivity and market linkages. Notable exceptions have included large investments in research and extension system linkages as well as sweeping reforms of extension systems. For example, with World Bank and other support, governments have invested heavily in designing and implementing new extension models such as Uganda's National Agricultural Advisory Services approach (described in box 3.7) and Ethiopia's farmer training center approach. The private sector has also invested in extension, including British American Tobacco, Nestlé, and horticultural and brewing companies. In many (particularly East African) countries, the export crop subsectors have organized the delivery of services, including extension, by sector, financed through export levies and district marketing fees and taxes.

Sources: Swanson, Farner, and Bahal 1990; Davis 2008; Davis et al. 2010b; World Bank Rural Portfolio Team.

continue providing blanket recommendations promoted through ever-repeated demonstration trials. The newly developing extension constituency, based on strengthening farmer organizations, the private sector, and NGO-supported advisory services, has evoked strong attention to extension in the Comprehensive African Agriculture Development Programme (CAADP) and the related Framework for African Agricultural Productivity. Outside Africa, increased attention to extension is expressed through the Global Forum for Rural Advisory Services (GFRAS). CAADP and the corresponding compact agreements at the country level advocate sharpening the focus and efficiency of service provision by basing it on farmers' actual demands, avoiding blanket recommendations, working with existing farmer groups, aiming for matching funds from value chain actors, and using new tools such as ICTs (box 3.3). The sustainability of service provision has become an important part of advisory service strategies. CAADP compact agreements also commit national governments to invest more in extension and not to rely on donor funding. In Uganda, for example, the percentage of the national budget allocated to extension (the National Agricultural Advisory Services—NAADS) gradually increased from 0.3 percent in 2003 to 2.6 percent in 2011, while significantly increasing as a percentage of the agricultural budget.

Changing approaches

Traditional approaches to extension changed as they encountered criticism for being top-down, unaccountable to users, biased against women, oriented to production and technology rather than to markets, and focused on blanket recommendations that did not take the diversity of farm households' circumstances into account. Such criticism generally stemmed from a combination of factors: a lack of relevant technology; failure by research and extension to understand and involve their clients in defining and solving problems; a lack of incentives for extension agents; and weak links among extension, research, farmers, and market actors (Davis 2008). In many countries, policies that favor economic liberalization have enabled farmers to become more market-oriented and entrepreneurial, creating the demand for extension services to advise farmers not only on production issues but on issues related to accessing markets. Training in marketing skills has become much more important for extension workers (Dixie 2005).

A number of approaches sought to overcome these problems and meet new demands on advisory services. The more traditional training and visit (T&V) extension model (Benor and Baxter 1984) was superseded by approaches pioneered on a small scale by NGOs, FAO, and bilaterally funded projects. These approaches emphasized participatory learning and action models, with farmer participation and more tailor-made services, including facilitation of access to financial services and access to markets. National and international efforts to revitalize extension brought about a variety of institutional reforms (Rivera and Alex 2004), informed primarily by market-led and demand-driven perspectives. For an example from India, see box 3.4.

Particularly in open and democratizing societies, and especially through innovations in communications, farmers are drawing information from an increasing range of sources. Their knowledge and innovation system has become quite diverse (Engel and Salomon 1997). Modern advisory service systems reflect this diversity and complexity in the range of approaches they use, their content, and their interaction with public and private entities. The term "pluralistic" is often used to capture the emerging diversity of institutional forms for providing and financing agricultural extension (TN 1). New actors are offering and funding advisory services, including NGOs, farmer organizations, the private sector, and community-based organizations. This pluralism is almost certain to prevail and deepen with respect to organizational forms, methods, and institutional structures.

Emerging innovative approaches

Group-based and participatory approaches to providing advisory services are gaining ground. These methods have the potential to overcome barriers to participation, foster inclusiveness, and lead to more demand-driven services. They all aim to strengthen the voice of farmers and channel their knowledge into agricultural extension, eventually contributing to farmer empowerment in service delivery and in value chain development (Nederlof, Wennink, and Heemsekerk 2008; KIT, Faida Mali, and IIRR 2006).

Farmer groups (contact groups) were introduced in the T&V extension model, mainly because it was more efficient to transfer information to groups rather than individuals. Subsequent experience with farmer extension groups in participatory planning and field schools (FFSs) has expanded farmer organizations' involvement in providing extension services and in farmer-to-farmer ("F2F") extension, further facilitated by mobile telephony (subjects discussed in boxes 3.3 and 3.5–3.6). For example, in the district participatory planning model used in Mozambique, farmer consultative

Box 3.3 Benefits of ICTs for Agricultural Extension and Advisory Services

Researchers associated with the Consultative Group on International Agricultural Research have shown that telecommunications infrastructure helps to reduce poverty and provide opportunities to people in developing countries (Torero, Chowdhury, and Bedi 2006). In the context of rural advisory services that support innovation, ICTs have three broad functions:

- ***ICTs address the need for localized and customized information***—adapted to rural users in a comprehensible format and appropriate language—to give small-scale producers as well as providers of advisory services adequate, timely access to technical and marketing information.
- ***ICTs store information for future reference.*** In many cases, information on technologies and good practices is available only in hardcopy, and data are incomplete, scarce, or useless. Local and indigenous knowledge is often transmitted orally, records are often unavailable, or the information is dispersed. A proper information system for rural users with standardized formats to compile, document, and share information renders that information more useful, secure, and accessible.
- ***ICTs facilitate the creation of networks*** locally, regionally, and globally, leading to collaborative and interdisciplinary approaches to problem-solving and research diversification through shared knowledge bases, online forums, and collaborative spaces. Many NGOs, research organizations, and national ministries have improved access to technologies and knowledge for their rural advisory services by means of rural telecenters and online forums.

Throughout the developing world, ICTs are being integrated into rural advisory services in a variety of forms, including rural radio, television, Internet, and mobile services. The advice and information provided via ICTs is becoming more varied, ranging from information about specific technologies and practices to information that enables climate change mitigation and adaptation; disaster management; early warning of drought, floods, and diseases; price information; political empowerment; natural resource management; agricultural information; production efficiency; and market access. ICTs also open new channels for farmers to document and share experiences with each other and with experts. The *Information and Communication Technologies for Agriculture e-Sourcebook* (World Bank 2011) features many examples of these applications.

Although many extension and advisory service providers are using "e-extension" or "cyber-extension" to improve their outreach to farmers and farmers' access to information, most of these initiatives are at early pilot stages and limited empirical evidence is available on the effectiveness of ICTs in extension.

Sources: World Bank 2011; Davis and Addom 2010.

councils orient the investment of district economic development funds in local projects developed by farmer associations. The associations receive support to develop business plans for the selected projects, many of which include the provision of extension services (see TN 2). The FFS approach (see box 3.5 and IAP 2) enhances interactive learning between farmers and between farmers and service providers. More recently, the involvement of farmer groups has been emphasized in the formation of "modern" cooperatives to develop enterprises and access financial services—savings and credit cooperatives (SACCOs) are an example (Heemskerk and Wennink 2004; Wennink, Nederlof, and Heemskerk 2007).

ICTs have created more options for providing advisory services (box 3.3, table 3.1) and are increasingly used to circulate market, price, and weather information as well as to offer specific kinds of extension advice (see World Bank 2011 and an example for animal health services in Kenya in box 3.6). At the same time, informal advisory systems, such as farmer-to-farmer dissemination of knowledge and technology, are increasingly recognized and built upon in pluralistic extension systems (see TN 1, box 3.12).

PRINCIPLES FOR DEVELOPING EFFECTIVE EXTENSION AND ADVISORY SERVICES

The specific level of investment in extension and the particular reform strategies to be followed will depend on the national context, including the current configuration of the actors in the extension and advisory service system (Birner et al. 2009). It is not sufficient to find an approach that worked in one country or district and implement it in

Box 3.4 Agricultural Technology Management Agency in India

The Agricultural Technology Management Agency (ATMA) is a market-oriented, decentralized approach to extension that many regard as a successful model of extension reform. The ATMA model attempts to increase farm income and rural employment by integrating extension programs across line departments, linking research and extension, and using bottom-up planning. Building blocks of ATMA include empowerment of farmers through farmer interest groups (FIGs), delivery of services to FIGs by diverse service providers, use of bottom-up planning relying on FIG representatives (consultation on farmers' needs and demands), and autonomy of the extension system. Coordination of extension service providers is an essential element. The impact of ATMA is well detailed (Swanson and Rajalahti 2010, 114).

Among the many lessons learned from ATMA, one of the most valuable is that extension should be more decentralized and bottom-up for the following reasons:

- Like agroecological conditions, markets for high-value crops and products are location-specific. Extension and farmers must identify and consider *which* high-value crops have the highest potential for success in each area. The most effective approach is to identify innovative farmers within similar areas who have started producing and marketing specific products.
- Extension must formally establish steering or advisory committees to identify the specific needs and priorities of representative farmers in each district, including rural women. For example, under the ATMA model, 30 percent of the places on each Farmer Advisory Committee and Governing Board were allocated for rural women.
- Extension can better serve male and female farmers by allowing private firms to play a role in "disseminating" product innovations and focusing public extension services more on process innovations, in which extension personnel serve as facilitators or innovation brokers (see TN 4).
- Innovative farmers play a key role in identifying and then scaling up process innovations (in farmer-to-farmer extension).

Scaling up of the ATMA model has been attempted with varying success. Successful scaling up often relied on sufficient attention to capacity-building to public extension providers (bottom-up planning, group formation, new extension methodology) as well as the allocation of sufficient resources for operational costs. In the absence of these characteristics, the model was less successful.

Sources: Singh et al. 2006; Anderson 2007.

another. Even though extension reforms must be tailored to local conditions, it is valuable to begin designing and developing more effective and sustainable extension and advisory services by considering several approaches to reform. These include reforms in governance structures, reforms in capacity and management, and reforms in advisory methods (table 3.1). Investment options and examples of these principles are provided in TN 1–4.

Many countries, especially those under pressure from democratic decentralization, have embarked on reforms that bring services closer to farmers. Under these reforms, participatory planning and resource allocation occur at the district level, and district agricultural offices coordinate the provision of services. Examples include NAADS in Uganda (box 3.7) and the National Agricultural Extension Program (PRONEA, Programa Nacional de Extensão Agrária) in Mozambique (see box 3.12 in TN 1). Ethiopia has embarked on an ambitious plan to bring advisory services to its most local administrative level. An intensive review of the extension system was led by CGIAR researchers in 2009 (box 3.8).

Decentralization and the demand for market-oriented services have heightened the need for district and provincial governments to involve private service providers in extension, either through close coordination with private agencies or by contracting them to provide services. These kinds of outsourcing models exist in Uganda,

Box 3.5 Farmer Field Schools for Participatory Group Learning

Farmer Field Schools (FFSs) consist of groups of people with a common interest, who get together on a regular basis to study the "how and why" of a particular topic. The FFS is particularly suited and specifically developed for field studies, where hands-on management skills and conceptual understanding (based on nonformal adult education principles) are required.

So what are the essential and original elements of FFSs? FFSs are a participatory method of learning, technology development, and dissemination based on adult-learning principles such as experiential learning. Groups of 20–25 farmers typically meet weekly in an informal setting on their farms with a facilitator. The defining characteristics of FFSs include discovery learning, farmer experimentation, and group action. The approach is an interactive and practical method of training that empowers farmers to be their own technical experts on major aspects of their farming systems. Farmers are facilitated to conduct their own research, diagnose and test problems, come up with solutions, and disseminate learning to others.

Source: Davis 2008.

Box 3.6 Mobile Telephony for Delivering Animal Health Services

FARM-Africa, an NGO working in Kenya in conjunction with the government and other stakeholders, developed a decentralized animal healthcare system in its Kenya Dairy Goat and Capacity Building Project (KDGCBP). To link key participants in the system, the project approached the Safaricom Corporation, the corporate social responsibility arm of the mobile phone company Safaricom. The KDGCBP system works with a community animal health worker, who purchases a veterinary drug kit and mobile phone at a subsidized price. The project also installs community phones, which have solar panels and batteries where there is no electricity, at veterinary shops. The owner of the community phone is responsible for repairs and can make a profit by charging for its use; for the private veterinarians, the phone is a means of diversifying income. Animal health assistants and vets working with the project also receive mobile phones. The phone system allows animal healthcare providers to update one another, share information, and conduct referrals. This system has reduced transaction costs and increased the efficiency of animal healthcare in the area.

Source: Kithuka, Mutemi, and Mohamed 2007.

Table 3.1 Approaches for Developing Effective Extension and Advisory Services

Approach	Definition	What is needed*
Reform of governance structures		
Decentralization and deconcentration	Based on the subsidiarity principle, the planning, financing, and administration of extension services occur at the lowest possible state administrative level.	General decentralization policies that are effectively implemented; demand-driven services for diverse farming systems; limited public goods character and nonlocal externalities of the extension messages; earmarking of funding in case of fiscal decentralization of extension to local governments; political will to build and maintain capacity for extension at the local level.
Strengthening of pluralism through outsourcing between public and private sector	Local extension systems that are based on coordination between public and private service delivery, complemented by contracting for services based on needs.	Capable service providers from private and third sector,** or sufficient resources to build this capacity; competition among service providers; recognition of the governance and procurement problems involved in outsourcing and adequate steps to overcome them, including building the extension agency's capacity to manage contracts.
Involving farmer organizations	Farmer involvement in extension service provision, from participatory planning to procurement to farmer-to-farmer extension and paying for services.	Existing social organizations (social capital); absence of strong social hierarchies; availability of sufficient resources to invest in social mobilization and group formation, especially if previous conditions are not met.

(*Table continues on the following page*)

Table 3.1 Approaches for Developing Effective Extension and Advisory Services (continued)

Approach	Definition	What is needed*
Privatization and public-private partnerships	Services (partially) paid by farmers themselves, directly or indirectly.	Commercialized farming systems with adequate market infrastructure; suitable business climate for the agribusiness sector; required market-oriented extension services. An example is the marketing extension approach, based on farmer training and market information.
Cost-recovery	Part of the operating costs of services paid by farmers in cash or kind to ensure that they get what they want and that the system is more financially sustainable.	Commercialized systems; possibility to embed in contract farming or link to the sale of inputs; possibilities to raise levies on commodities (such as export crops).
Reform of capacity and management		
New public management	Use of private sector principles such as those for human and financial resource management (performance contracts, costing, and financial transparency).	Fit with general public sector reform approaches and relatively autonomous extension organizations.
Business process reengineering	The analysis and design of workflows and processes within an organization.	In reviewing hierarchical structures and reporting systems.
Reform of advisory methods		
Farmer Field Schools	Farmer-centered learning groups, eventually facilitated by farmers (farmer-to-farmer extension).	Complex technologies that require substantial learning (for example, technologies that must be adapted to diverse agroecological conditions) and/or behavioral changes.
Use of information and communication technologies (ICTs)	ICTs as a means for wider access to information.	Adequate countrywide ICT infrastructure. Capacity of users (e.g., literacy) required in many cases. Appropriate language needed.

Source: Birner et al. 2009.

* See "New Directions, Priorities, and Requirements for Investment" (in this module) and TN 1 for ideas on how to implement advisory services of this kind.

** Consisting of NGOs and organizations based on collective action.

Box 3.7 National Agricultural Advisory Services in Uganda

The Government of Uganda created the National Agricultural Advisory Services (NAADS) through the 2001 NAADS Act to provide a decentralized, pluralistic, contract-based agricultural advisory system that would improve farmers' productivity and livelihoods. Local governments contract for NAADS advisory services based on needs identified by local farmer groups, organizations, and farmer forums. District governments provide some additional funding for those extension activities and help set priorities.

Creating a totally new organizational and management structure for a national extension system takes considerable time, both for hiring new staff and for organizing farmers to help set extension priorities, monitor extension programs, and track expenditures. Under NAADS, public extension workers were phased out progressively across regions of the country. Most of these workers were rehired by the private firms and NGOs that participate in NAADS and were assigned to new positions and service areas. This transformation has had its challenges, such as public extension workers' dissatisfaction with short-term, performance-based contracts and the lack of a civil service job guarantee. Another challenge was the limited availability of resources to train and improve the skills and knowledge of the "new" privately employed advisors, who needed to know how to organize farmer groups and train different types of farmers, including women, to diversify their crop/livestock farming systems. Along with creating a new management structure and hiring new employees, the decentralized, private NAADS system had to arrange for new facilities (offices), equipment, transportation, and a communications system. Because the advisory services were to be managed by new farmer-based organizations, about 80 percent of the organizational and operational costs were still financed by donors as of 2008. In addition, the central government covered 8 percent of the recurrent costs, local governments financed about 10 percent, and 2 percent were financed by the farmers themselves.

(*Box continues on the following page*)

Box 3.7 National Agricultural Advisory Services in Uganda (continued)

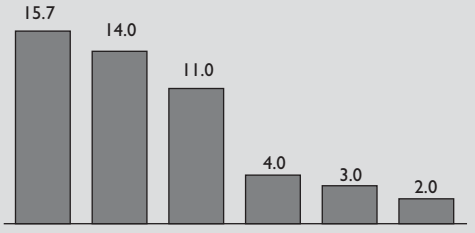
In 2007/08, NAADS reached 760,000 households in 712 subcounties in 79 of the 80 districts, which is still less than 20 percent of all farming households that accessed agricultural extension advice. Apart from NAADS, Uganda had 1,600 public extension agents (due to be fully integrated in NAADS in 2010) and parallel extension programs operated by NGOs and private service providers.

The investment in Phase I of NAADS (2001–09) was estimated at about US$110–150 million. For Phase II (2010–15), an investment of US$300 million is foreseen.

Sources: Authors; for more information on NAADS, see www.naads.or.ug; Benin et al. 2007; Heemskerk, Nederlof, and Wennink 2008; and Swanson and Rajalahti 2010.

Box 3.8 Ethiopia: Investing in Human Resources

Recently the government of Ethiopia invested heavily in putting farmer training centers (FTCs) in every local administrative area (there are 18,000 nationwide) and three extension agents at every training center. From 2000 to 2008, the number of extension agents increased from 15,000 to at least 45,000, with a goal of reaching about 66,000. Reaching that goal would probably give Ethiopia the world's highest ratio of extension agents to farmers (see box figure).



	Ethiopia	China	Indonesia	Tanzania	Nigeria	India
Total # of agents	45 k	700 k	54 k	7 k	5 k	60 k
Agent: Farmer	1:635	1:714	1:909	1:2500	1:3333	1:5000

Source: Davis et al. 2010b.

Mozambique, Mali, and Tanzania, among other countries (Heemskerk, Nederlof, and Wennink 2008).

Farmer organizations are becoming much more involved in delivering extension services. Their involvement is growing because group approaches are becoming more common (as mentioned earlier) and improve the cost-effectiveness of providing extension services.

The private sector increasingly finances extension services for specific objectives and/or value chains. Contracting public extension workers for specific tasks is a common practice among NGOs as well as specific commodity development programs, such as the program for cashew production in Mozambique. Some export commodity chains finance extension services through a government-instituted export levy, as in Mozambique and Tanzania. The private sector also finances extension services directly, as is the case with large tobacco companies in Malawi and Mozambique. Many of these arrangements are in transition to become systems of cost-sharing with farmers, first by assuring effective demand for relatively costly services and eventually by having farmers fully finance extension services, as a complement to services they already provide one another (F2F extension) (box 3.9).

To increase efficiency and performance, service provision systems financed by the public sector increasingly apply principles from the private sector, such as the development of a business plan for service provision, the costing and financial transparency of services provided for farmers, and the use of performance contracts for service providers. These reforms are generally referred to as "new public management" (Heemskerk et al. 2003).

KEY POLICY ISSUES

In conjunction with efforts to make advisory services more effective, what key policy issues must be considered? Extension and advisory service systems need to build new constituencies if they are to influence policies. Constituencies could be based on alliances of public and private service providers with farmer organizations and key value chain actors from the private sector. National networks can relate to international networks such as GFRAS

Box 3.9 Fee-for-Service Extension: Pros and Cons

Fee-for-service extension is provided by the public (or another) sector and paid for by farmers. Small groups of farmers usually contract the services. This arrangement allows clients to "vote" on the programs and the scale of the programs they want by paying for them. Most examples of this model come from developed countries, such as New Zealand, where agricultural advisory services are completely privatized.

In addition to providing feedback to public extension efforts, fee-for-service extension also can provide revenue to public extension. It is suitable for rival and excludable products. Hanson and Just argue that universal paid extension is not in the public interest but that there is an optimal mix of public, private, and paid extension. A problem with implementing this type of extension service in developing countries is that farmers who do not produce for the market may purchase fewer services. One solution to this difficulty is to stratify farmers, allowing commercial farmers to purchase services and offering public extension services to smaller-scale, poorer farmers.

Sources: Hanson and Just 2001; Anderson and Feder 2004.

(http://www.g-fras.org/en/) and the African Forum for Agricultural Advisory Services (AFAAS, http://www.afaas-africa.org/) for effectively influencing policy (both forums are discussed in box 3.10).

General policy issues for extension and advisory services

Two main opportunities for developing policies will improve the effectiveness of advisory services, based on evidence of what really works. The first opportunity is provided by the many lessons and pilot experiences emerging from structural reforms to develop pluralistic, demand-led, and market-oriented extension systems. The second opportunity lies in the new requirements for advisory services to meet the demands arising from climate change, food security programming, the new aid-for-trade agenda, and reform in the agricultural research-for-development agenda (Christoplos 2010). In realizing these opportunities, several important challenges must be addressed (Christoplos 2010):

- ***Proceed with extension system reform without relying on a single grand model,*** as one model cannot accommodate all situations: Extension is to be location- and even value chain-specific.[1]
- ***Move toward pluralism*** in extension service provision while retaining public financial commitments and coordination (see TN 1).
- ***Increase downward accountability*** to farmer organizations (also through decentralization and based on the subsidiary principle) (see table 3.1 and related text).
- ***Create an effective, efficient market for service providers,*** which will control the costs of scaling up promising experiences by different public and private actors (see IAPs 3 and 4).
- ***Face the enormous need for human capacity development*** in management and implementation; extension workers, to cite just one example, need a wide range of new skills.
- ***Move away from projects*** to programs based on long-term vision and commitments (move toward national extension systems based on public-private partnerships).
- ***Balance investments in extension supply and extension demand,*** because both types of investment are needed for effectiveness (introduce new public management principles).
- ***Focus on institutions*** rather than grand methodological or technological solutions (see IAPs 3 and 4). As noted, extension approaches must be adapted locally, and there is no single correct method (emphasize institutional innovations and organizational change).
- ***Move from standard packages to tailored services*** provided at the right place, at the right time, and in the right format. Critical thinking and problem solving are integral to developing tailored services. (Participatory planning as part of decentralization and deconcentration—including downward accountability—and facilitation rather than teaching are crucial, as well as an emphasis on learning and business plan development.)
- ***Address equity issues.*** It remains a challenge to ensure that extension adequately reaches different groups of farmers and entrepreneurs: women, youth, the landless, resource-poor farmers, minority ethnic groups and castes, and others. (Different extension strategies are needed for small-scale commercial farmers, emerging commercial farmers, and farmers producing for food security, subsistence, or part-time. Women require specific extension programs. Priority setting needs to be addressed in this context for younger and older farmers as well as male and female farmers and

Box 3.10 Global and Regional Coordination to Strengthen Agricultural Advisory Services

Many stakeholders recognize that advisory services require a more formal, dynamic, and proactive structure to gain a more credible, authoritative voice. Two forums provide advocacy and leadership for advisory services at the regional and global levels.

The Global Forum for Rural Advisory Services (GFRAS) (www.g-fras.org, established in January 2010) is designed to provide a voice within global policy dialogues and promote improved investment in rural advisory services; support the development and synthesis of evidence-based approaches and policies for improving the effectiveness of rural advisory services; and strengthen actors and forums in rural advisory services through interaction and networking. GFRAS will link closely to regional networks such as AFAAS.

The African Forum for Agricultural Advisory Services (AFAAS) (www.afaas-africa.org, established in 2004), was conceived when the leadership of the National Agricultural Advisory Services realized that extension services, unlike research services, had no mechanism to share experiences. AFAAS envisions agricultural advisory services that "effectively and efficiently contribute to sustained productivity and profitable growth of African agriculture" in ways that are oriented toward countries' individual development objectives. Through increased professional interaction and information sharing, AFAAS participants build on lessons learned in agricultural advisory initiatives and enhance the use of knowledge and technologies by actors in agricultural value chains.

Source: Authors.

farmers oriented more to markets or more to food security).

Other policy issues related to pluralistic advisory services and extension include the changing roles of various extension providers and the comparative advantage for different providers in carrying out specific extension functions and advisory services. For instance, publicly funded advisory services should not involve themselves directly in the provision of physical inputs (including credit). Also, many bureaucrats still regard extension in a very linear way that focuses on extension functions such as transferring technologies to ensure better food security. Paradigm shifts must take place not only in the programs and the thinking of field staff but in the thinking of extension administrators and policy makers. Finally, the sustainability of extension institutions is another major issue for policy to address (Swanson and Rajalahti 2010), as is equity. These three topics (the respective roles of public and private extension providers, sustainability, and equity) are covered in the sections that follow.

Public and private sector roles

In principle, agricultural advisory services can be provided and financed by the public sector, the private sector (individual farmers or companies), and what can be referred to as the "third sector," consisting of NGOs and organizations based on collective action. These providers can be organized on the basis of who provides and who finances the services (table 3.2). The functions of service provision and financing often are separated to ensure that services are financed by clients or the corresponding sector and reflect their demands. Combinations of implementation and financing of services are presented in each cell of table 3.2.[2]

Institutional base for sustainability

Different aspects of sustainability can be considered with respect to advisory services, but most often the concern involves the sustainability of financing. Several approaches have been criticized for their lack of financial sustainability, including the T&V system promoted in the 1980s and the more recent FFS approach (Quizon, Feder, and Murgai 2001; Anderson 2006). Current FFS programs, especially in Africa, address sustainability in various ways, including revolving FFS funds, self-financing, and FFS loan and repayment schemes. The use of farmer facilitators reduces costs dramatically.[3] More agribusiness development services and market-oriented advisory services aim for farmers, the subsector, or the commodity chain to pay at least partially for services.

Sustainability can also be addressed through innovative modalities for financing advisory services. Cost-sharing

Table 3.2 Options for Providing and Financing Pluralistic Agricultural Advisory Services

Service provider	Finance provider: Public sector	Private sector: Farmers	Private sector: Companies	Third sector: NGOs	Third sector: Farmer-based organizations (FBOs)
Public sector	Public advisory services (different degrees of decentralization)	Fee-based public advisory services	Private companies contract staff from public advisory services	NGOs contract staff from public advisory services	FBOs contract staff from public advisory services
Private sector: Companies	Publicly funded contracts to private service providers	Private companies provide fee-based advisory services	Embedded services: Companies provide information with input sale or marketing of products	NGOs contract staff from private service providers	FBOs contract staff from private service providers
Third sector: NGOs	Publicly funded contracts to NGO providers	Advisory service staff hired by NGO, farmers pay fees	Private companies contract NGO staff to provide advisory services	NGOs hire own advisory staff and provide services free of charge	
Third sector: FBOs	Publicly funded contracts to FBO providers	Advisory service staff hired by FBO, farmers pay fees		NGOs fund advisory service staff who are employed by FBO	FBOs hire own advisory staff and provide services free to members

Sources: Birner et al. 2009, adapted from Anderson and Feder (2004, 44).

arrangements (such as those used in Uganda's NAADS program) allow resources to be mobilized from various sources. These resources can be pooled and distributed to end-users based on demand.

Stakeholder forums consisting of farmer groups create a critical mass for services required from either public or private bodies and can reduce service costs. Forums empower farmers to identify and use selected qualified service providers (Government of Kenya 2005). Other potential methods for mobilizing and managing funds include levies on export commodities (Tanzania, Kenya), community-driven development funds (Guinea, Kenya), and contracting by the government (Mozambique) (Rivera and Alex 2004).

Financing for advisory services may also come from resources provided through decentralization programs, the involvement of farmer associations and NGOs, contracting-out of extension services, public-private partnerships, privatization, and embedding advisory services in other types of contracts (Anderson 2007). More information on these subjects is available in module 3 of the *Agriculture Investment Sourcebook* (World Bank 2006b).

Financing alone cannot guarantee the institutional sustainability of advisory services. Capacity within the advisory service is another major concern. Extension workers must be able to apply new approaches that focus more on facilitating processes than on teaching models and are more oriented toward the development of businesses, markets, and enterprises. Apart from absorbing these individual capacities, public providers of advisory services will have to undertake major organizational changes, such as the use of performance-based contracts and incentives. Institutional development is also important (IAP 2). Public advisory services must develop the institutional capacity to coordinate and manage local extension systems. For example, they will need the capacity to facilitate interactive learning between different extension service providers.

Gender and equity considerations

Women make up 60 percent of the rural population worldwide (Hafkin and Taggart 2001), yet they receive only 2–10 percent of extension contacts and 5 percent of services (Swanson, Farner, and Bahal 1990). In sub-Saharan Africa, where women play a major role in agriculture and account for more than half of agricultural output, they continuously receive a less-than-proportional share of the total investment in agriculture (Blackden et al. 2006; Quisumbing 2003). Only 7 percent of extension resources are spent on African women (Blumberg 1994, cited in Haug 1999). African women remain especially disadvantaged in interventions relating to education, extension, capacity strengthening, empowerment, and market access (Rahmato 1993; Alawy

1998; Frank 1999; Haug 1999). This problem is especially pronounced in areas emerging from conflict (World Bank, UNDP, and UNIFEM 2010).

Despite this evidence of neglect, recent studies conclude that some programs have reached women farmers by taking practical steps to address the lack of inclusiveness in providing advisory services (Davis et al. 2010a; Gender and Governance Research Team 2009). A major first step is to develop transparency in service provision by segregating data on the participation of men and women, young and old, and different categories of farmers (subsistence, emerging, and small-scale commercial) in all activities, from planning and training to monitoring and evaluation. This information can form the basis for developing joint action plans to address any problems with inclusiveness for any of these groups. Second, extension agents and others (including policy makers and local government officials) must be equipped with the skills to respond to the needs of a diverse clientele with respect to age, gender, socioeconomic background, ethnic differences, age, livelihood source(s), and so on. For more information see Christoplos (2010).

NEW INVESTMENT DIRECTIONS, PRIORITIES, AND REQUIREMENTS

In Africa, CAADP and the compact agreements are guiding advisory services into efficient and well-focused service delivery at the center of the AIS. This is a complete paradigm shift from the perception that research knowledge can drive innovation to the notion that change in the whole system is needed for innovation.

Throughout the developing world, similar evolving demands and new roles for advisory services in the wider innovation system will require new investments—among others, investments in the capacity of individual extension workers and organizations for value chain approaches, in market-oriented extension, in group and organizational development, in agribusiness, and in mechanisms to share information (networks, platforms, and the like). Recent global developments require advisory services to focus on climate change, food security, and equipping rural people to deal with risk in general. There is a need for evidence-based direction regarding investment priorities and programming options for agricultural advisory services within innovation systems. To influence policies and better serve their constituencies, including the poor and women, advisory services need a stronger voice at the global and regional level; box 3.10 describes approaches to achieve this goal. Finally, investment in nonagricultural issues will be essential. This topic is somewhat outside the scope of this sourcebook, yet it must be considered for investments in extension. The extent of attention to such issues as nutrition, community organization, microenterprise development, health, youth activities, women's empowerment, and rural development varies. There may well be a case for extension to facilitate off-farm employment as a means of improving opportunities for agricultural commercialization.

The thematic notes and innovative activity profiles in this module offer an array of strategies that may be adapted to meet these needs for investments, policies, and innovative approaches:

- ***TN 1: Pluralistic Extension Systems.*** Pluralistic extension recognizes the inherent plurality and diversity of farmers and farming systems and the need to address challenges in rural development with different services and approaches. This note describes pluralistic systems, their strengths and challenges, investment opportunities, policy issues, and emerging lessons.
- ***TN 2: Farming as a Business and the Need for Local (Agri-) Business Development Services.*** Farming as a small-scale business requires access to markets, financial services, and inputs, as well as a suitable mix of farmer entrepreneurial skills and attitudes and bankable business plans. This note discusses approaches to address farmers' business development needs, such as reorienting programs and staff, recruiting new staff, involving communities as agribusiness promoters, and developing multistakeholder platforms to support agribusiness development.
- ***TN 3: Extension-Plus: New Roles for Extension and Advisory Services.*** Extension can move beyond its traditional technology transfer role to operate as a nodal agency within the AIS, providing technological and nontechnological services to farmers. This "extension-plus" approach emphasizes locally developed strategies for participants to learn through experimentation and adaptation. It is a "best fit" rather than a "best practice" approach, requiring changes in extension and other institutions in the AIS.
- ***TN 4: The Role of Innovation Brokers in AISs.*** Some extension agents and other actors (such as researchers and staff of NGOs) have chosen to operate as innovation brokers. Innovation brokering expands the role of agricultural extension. Extension is no longer a simple, one-to-one intermediary between research and farmers but an intermediary that creates and facilitates many-to-many relationships (a key concern within AISs).

- ***IAP 1: Agrodealer Development in Developing and Emerging Markets.*** Agrodealers have an increasing presence as providers of advisory services. A holistic, market-oriented approach to agrodealer development facilitates improved efficiency in resource allocation, operations, and economic performance and helps to develop sustainable input supply systems.
- ***IAP 2: Federating Farmer Field Schools in Networks for Improved Access to Services.*** By federating, farmer groups increase their effectiveness in obtaining the advisory services they identify as important at the local level, often at a lower cost.
- ***IAP 3: INCAGRO: Developing a Market for Agricultural Innovation Services in Peru.*** This case study of INCAGRO describes how Peru developed a demand-driven market for agricultural innovation services; two competitive grant funds were important features of the program.
- ***IAP 4: Combining Extension Services with Agricultural Credit: The Experience of BASIX India.*** Recognizing that agricultural credit alone did not equip India's rural poor with the knowledge, skills, and support services to improve incomes, BASIX developed a triad of integrated services—financial services; agricultural, livestock, and enterprise development services; and institutional development services—to improve livelihoods.

MONITORING AND EVALUATING INVESTMENTS AND SCALING UP

To ensure the proper implementation of extension investments, M&E exercises and tools are crucial. Because attempts to monitor and evaluate extension and advisory services have been weak or nonexistent, GFRAS developed a guide for the evaluation of extension and advisory services (box 3.11). General studies find high rates of return to investments in advisory services, but the challenges and difficulties in estimating the benefits are many. Efforts to strengthen the understanding of how to improve M&E in extension continue, but it is already clear that some of the most important components of M&E are participation by all parties; the clear definition of objectives, indicators, outputs, outcomes, and desired impact; continual assessment throughout the investment period; and the collection of baseline data. Important indicators include benchmark and baseline indicators as well as input, output, outcome, and impact indicators (Swanson and Rajalahti 2010). For extensive lists of indicators, see Swanson and Rajalahti (2010) and Rajalahti, Woelcke, and Pehu (2005).

Box 3.11 Guide to Extension Evaluation

The Global Forum for Rural Advisory Services (GFRAS) publishes a guide to conducting more comprehensive, rigorous, credible, and useful extension evaluations. The guide describes different types of evaluation, explains how to select the approach that is most appropriate to the particular context, and identifies additional sources of theoretical and practical information. It includes guidance on such issues as preparing terms of reference and links to evaluation manuals in different sectors. The guide is intended to be used primarily by:

- Those commissioning and managing evaluations.
- Professional evaluators and staff responsible for monitoring systems.
- Those involved in knowledge- and results-based management within a range of organizations involved with extension.
- Staff of public extension agencies, farmer associations, and other organizations directly or indirectly engaged in providing extension services.
- Professionals involved in training and educating evaluators.
- Researchers looking for ways to synergize their efforts with evaluation initiatives.

Source: Adapted from the website for the guide at GFRAS, http://www.g-fras.org/index.php/en/knowledge/gfras-publications/file/20-guide-to-extension-evaluation, accessed July 2011.

Indicators are needed for judging the effectiveness of extension programs, including the share of farmers with regular access to services and their perceived satisfaction with the services. Such indicators should not be limited to farmers but also developed for male and female producers, other (mostly private) actors in the chain, and (local) governments (Spielman and Birner 2008). To monitor and evaluate pluralistic advisory services, *output indicators* include capacity level in terms of business development services and local certification services; management of pluralistic extension systems at the district level; and learning taking place between agencies. *Outcome indicators* include the quality of investment plans to improve associations and

indicators measuring whether the voices of female farmers are heard in farmer forums.

Given the increasingly pluralistic character of extension systems, many innovations—technological as well as institutional—will develop. The system needs a mechanism for monitoring and learning from new, often very local, practices and experiences, which is a major new task for extension management. Management will have to be open to experiences from the private as well as the public sector, involving all key innovation system stakeholders. Local good practices can be identified, documented, and then considered for use on a wider scale through a specific strategy for scaling up.

The process of scaling up agricultural practices is complex and influenced by many factors. Scaling up can largely concern the more quantitative aspects of increasing the number of farmers adopting or adapting technology to their own situations, but it can also concern the policy, institutional, and organizational aspects of implementing a practice on a wider scale. Based on innovation system concepts, the factors potentially influencing success in scaling up good practices need to be analyzed ex ante.[4]