

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

OVERVIEW

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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.

Sources: World Bank 2011; Davis and Addom 2010.

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.

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

Sources: Singh et al. 2006; Anderson 2007.

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.

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 health-care 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.

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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

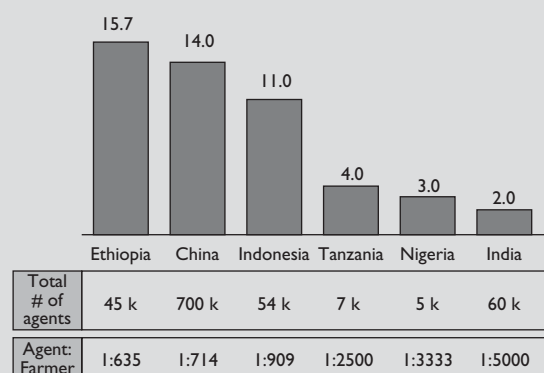
parallel extension programs operated by NGOs and private service providers.

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).



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.

Source: Authors.

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.

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 non-technological 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

Pluralistic Extension Systems

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SYNOPSIS

Pluralistic extension recognizes the inherent diversity of farmers and farming systems and the need to address challenges in rural development with different services and approaches. It is characterized by the coexistence of multiple public, private, and mixed extension systems and approaches; multiple providers and types of services; diverse funding streams; and multiple sources of information—all of which benefit from some degree of coordination and regulation that facilitates interaction and learning. Ideally, the outcome of pluralistic extension services is that different client groups in different contexts are satisfied with their access to services that they have demanded. Although pluralism in advisory services makes it possible to capitalize on the competitive advantages of different actors, one of pluralism's greatest challenges is to coordinate organizations that have vastly different mindsets and worldviews. A key message is that the public sector's primary role is to ensure that this mix of providers achieves jointly developed objectives. Public coordination and management of pluralistic extension services should be based on a program for action developed jointly by multiple stakeholders and service providers. The action program should reflect stakeholders' agreement on the roles for the different service providers and on who is best suited to perform each function under the program. The variety in services demanded is then matched with the existing variety of service providers. The emphasis is on coordination, which can lead to regulation and performance-based contracts for additional services, all based on complementarity.

WHY PLURALISTIC SERVICE SYSTEMS?

Many types of advisory service providers and approaches exist side by side. This situation is good, as the diversity of

rural life and needs should be matched by diversity in services, approaches, and providers. Differences between the poor and resource-poor farmers; crop, livestock, and fisheries systems; production and conservation objectives; and local and export value chains—to name only a few—will affect which organizations can best provide services and by which methods. These differences are a major reason for encouraging pluralistic systems.

Farmers, often impelled by market opportunities but also by environmental, labor, and land productivity challenges, look for information and knowledge to strengthen their production systems. Trends such as market liberalization and development, as well as democratization and the communications revolution, drive farmers to obtain agricultural information through a wider range of means and from a wider range of sources than ever before. Even traditional mass media such as (community) radio,¹ television, and newspapers can reach quite different audiences. For farmers, public extension services are just one source of information, often the one focusing purely on production issues (Spielman et al. 2011). Farmers procure other, more business-related services in the private sector and access facilitation services (for group processes, as well as interaction with input and market actors) through NGOs and farmer organizations. Technology and information are no longer transferred through a linear system (Wennink and Heemskerk 2006), leaving national extension and advisory systems in many parts of the developing world struggling to meet new demands from farmers and other actors in the innovation system.

A useful alternative is the coordination and management of pluralistic extension services based on a program for action developed jointly by multiple stakeholders and service providers. The action program reflects stakeholders' agreement on the roles for the different service providers and on who is best suited to perform each function required

by the program. The variety in services demanded is then matched with the existing variety of service providers. The emphasis is on coordination, which can lead to regulation and performance-based contracts for additional services, all based on complementarity. Some systems are self-organized (value chains driven by the private sector) and do not require this public role in coordinating service provision.

BACKGROUND AND CONTEXT FOR INVESTMENT

Aside from the trends mentioned earlier, the provision of advisory services to smallholders in developing economies is influenced by the decentralization of governments and governance as well as by the deconcentration of public service delivery processes. In such dynamic environments national agricultural extension services are starting to play new roles, based largely on principles of demand-driven planning, management, facilitation, and learning through interaction.

All of the newly recognized actors in advisory services can equally bring about new ideas and innovations in agricultural extension, contributing to a system in which the different roles can lead to synergy. National agricultural advisory service systems are attempting to capture these institutional innovations by contracting-in different services at the district, provincial, and sometimes national levels. Advisory services are growing more varied; rather than being limited to technology services, they are offering more general information and brokering services (see TN 4). They also facilitate access to other services, such as financial and market information services, through different means, including the mass media and social media.

Advisory service providers increasingly vary as well. Traditionally, the private sector provided the more market-oriented and business development services (TN 2), and the public sector provided services focused on using technology to enhance agricultural productivity. In pluralistic extension systems, the services in demand are supplied by the right mix of providers. Certain service providers often perform specific advisory functions (as shown by the “x” in table 3.3). The matrix in table 3.3 will differ in every situation and context. It can be used to develop the best mix of services required and can ultimately lead to pluralistic extension, as described in box 3.12.

Under pluralistic systems, different types of agricultural and agribusiness advisory services or different providers

work together to provide extension services. Services can be provided by:

1. **Subsectoral bodies** representing private, market-oriented farmers, such as a coffee board or national commodity association. This practice often occurs in cash crop subsectors such as coffee in Colombia, cotton in Benin, cashews in Tanzania, or the Kenya Tea Development Agency (see box 1.22 in TN 4 of module 1).
2. **Producer/farmer organizations and cooperatives**, not on the national level but at the meso level—for example, when a farmer association provides services through volunteer members, as in Mozambique’s National Union of Smallholders or Mexico’s Produce Foundation (see module 1, IAP 2)—and on the individual level (for example, a milk producer cooperative or a vegetable producer association).
3. **Local NGOs** usually working with farmer groups and community-based organizations, mostly in subsectors that do not involve cash commodities but increasingly in market-oriented services.
4. **International NGOs (mostly donor-funded)** usually working with farmers’ groups and community organizations in subsectors for cash and noncash commodities, which may at times overlap, but also **agri-agencies of developed country farmer organizations**.
5. **Governments** that support activities under 1, 2, 3, and sometimes 4 in a sort of “joint venture” at the national, provincial/regional, or local/district level; or **public agencies** working with civil servants. In the public sector, different extension systems (for example, for crops, livestock, and forestry) can exist side by side within the same or different ministries. Many countries have taken a step forward in coordinating this multiplicity of public extension programs by adopting a unified (public) extension system.
6. **Input suppliers** and **agrodealers** supplying agrochemicals and veterinary products and **buyers of products** (such as buyers of flowers and fresh vegetables) (see IAP 1).
7. **Private business contacts** and relationships that provide informal advisory services, like playing a brokering role (TN 4). Increasingly, local business development services are also provided by **financial services** (microcredit organizations and banks), **actors in the value chain**, and **other private actors** (TN 2).
8. **Village/community extension workers**, often connected to input supply programs (such as cashew spraying services or chicken vaccination). **Lead farmers** and local

Table 3.3 Extension Service Functions and Service Provider Categories
(the number of “x’s” indicates the general prevalence of specific services)

Functions versus providers	Sectoral bodies	Producer organizations	Local NGOs	International NGOs	Governments	Input suppliers	Private business sector	Community extension workers
Information	Sector-specific		Only general			Market	Market info	
Training and advice	x Quality		xx	xx	x		Quality	xxx
Technology testing	Cash crops	x		x	xx	Demos		xx
Business development	x	x	x	xx		xx	xxx	
AIS linkage facilitation/ brokerage	x		xx		Only w/ research		x	
Institutional development		Bonding, bridging, linkage social capital*	xx Bonding	xx Bridging	Bonding		Market links	Research linking
Legal advice			Land rights group registration				Outgrower contracts	
Green services		Ecosystem services	xx	x			Certification	

Source: Authors.

* Bonding social capital through strengthening the group, bridging social capital through federation and unionizing, and linking social capital through developing the capacity of groups to interact with other stakeholders (Heemskerck and Wennink 2004).

Box 3.12 Pluralism in Action: Government-Funded Public, Nongovernmental, and Privately Managed Extension Systems in Mozambique

Mozambique became independent in 1975, but civil strife prevented the government from establishing public extension services for its farmers until 1987. The government used (international) public funds to contract several local and international NGOs to organize and provide extension services to farmers in selected regions. Over the years, the size of the public and NGO extension systems has fluctuated from around 600 to 800 extension workers each. The government has also outsourced some extension services. For example, it contracted several private, large-scale farmers, companies, and NGOs and hired an additional 200 extension workers under short-term contracts to focus on specific assignments. These combined actions have resulted in an average of 10–14 extension workers in each rural district, who reach between 10 and 20 percent of farm households.

The interplay of NGOs, the private sector, farmers, and their organizations in extension has led over time to a new, pluralistic extension system in Mozambique. The public sector concentrates on strengthening and gradually expanding the size and improving the quality, accountability, and relevance of its public extension services,

Sources: DNEA 2007; Swanson and Rajalahti 2010.

because the public sector remains the cornerstone of Mozambique's pluralistic extension system. Extension activities are coordinated at the district level by local government officials. They coordinate NGOs, farmer organizations, and private service providers, whereas provinces (and also districts) may also outsource specific assignments complementary to the public extension system. Long-term public financing for extension is crucial, as it will be difficult, if not impossible, for low-income men and women farmers to pay for extension services themselves. Poor farmers will pay for specific services, such as cashew spraying and veterinary services, as these are embedded extension services, but they are generally unwilling and unable to pay for advisory services that deal with "public" knowledge and information.

The current publicly financed extension system has three main programs laid out until 2015. First, it will strengthen service provision in the public sector, the private/NGO sector, and farmer-to-farmer extension. Second, it will empower farmer associations in planning, pursuing economic activities, and providing services. Lastly, it will emphasize the coordinated management of service provision at the district level.

facilitators such as those working with FFSs are also providing such services.

The brokering and facilitation function can be performed by any of the entities listed above. This function in particular has become more important with the growing realization that catalyzing innovation involves more than transferring knowledge and requires strong interaction between a variety of actors (Klerkx, Hall, and Leeuwis 2010; TN 4). Such interaction responds to a key concern within AIS (TN 4).

INVESTMENT NEEDED FOR INNOVATIVE AND PLURALISTIC EXTENSION SERVICES

The principles discussed in the following list are central to pluralistic extension systems:

- **Deconcentration.** The public sector has an important but differentiated role at the local, meso (provincial,

regional), and national levels, particularly in providing coordination, technical backstopping, and knowledge management. The public sector should facilitate learning and scaling up, as well as ensure quality assurance and oversight. Advisory service systems supported by public funds are increasingly planned, financed, implemented, and coordinated at the district level. The meso level coordinates and implements crosscutting services (mostly on contracts), such as seed services, environmental management services, food security services, and other services that extend beyond district boundaries. The public sector at the national level plays a supportive and backstopping role for all service providers and provides the enabling environment—conducive policies, strategies, and regulations.

- **Decentralization.** As local governments are empowered to run their own affairs, it is becoming common (notably in Anglophone and Lusophone Africa) for district governments and administrations to operate a budget obtained from the treasury and allocated on the basis of

an integrated district development plan. Agricultural planning priority is shifting from sectorwide agricultural planning to higher-quality district agricultural development plans.

- **A system for providing multiple services.** Extension managers and partners recognize that the quality of service provision can be improved through performance-based contracts and that the choice of provider must be based on the comparative advantages of the public sector, private sector, and civil society. The best mix of services can be identified for every situation, depending on the demand for and availability of services.
- **Farmer empowerment.** Farmer organizations represent the voice of their clients, but they are also partners in extension when it comes to planning, allocating resources, M&E, and providing services. Empowerment is twofold, consisting of economic empowerment as well as involvement in decision making. As farmers' economic empowerment in value chains and local economic development grows, farmers gain a more forceful role in setting priorities, planning, and providing services. In pluralistic systems, downward accountability and user involvement make quality control possible only at the local level. Downward accountability of service providers to farmers becomes more important for quality control than upward accountability to financiers (see also module 1).
- **Outsourcing services.** Local governments (districts, communes, and so forth) are contracting-in the services directly demanded by farmers in district agricultural development plans, based on the comparative and competitive advantages of the various service providers. This trend should improve synergy and complementarity in service provision.
- **Partnerships.** Example of partnerships and linkages between agricultural advisory services and other actors in the innovation system and services include partnerships between advisory service providers and agricultural research agencies, agricultural chambers of commerce, microfinance organizations, and agroprocessing services.
- **Extension approaches.** A major challenge is to continue shifting extension from a top-down approach offering blanket, production-oriented recommendations toward a more interactive learning approach. The interactive approach provides room to differentiate among categories of clients, messages, and approaches. Extension officers play more of a facilitating role; based on their technical expertise, they stimulate learning among farmers (as in FFSs) and with other actors, particularly market

actors. District extension systems need to be supported by provincial and national services and knowledge centers in case demand for knowledge services extends beyond the district level, as this is part of the new extension.

Depending on the needs identified in a given situation, investments can be made to support the conditions that will enable extension to become more pluralistic and meet those needs. As indicated in table 3.4 and the discussion that follows, capacity strengthening is a major area for investment, and investment is needed at all levels.

Capacity development: A major area of investment

In general, capacity can be considered with respect to institutions, organizations, and individuals. In supporting extension services that enhance innovation dynamics, there is in general a shift from strengthening organizations to strengthening extension systems. System or organizational learning requires five core capabilities: (1) to commit and engage; (2) to carry out the mandate and deliver results; (3) to link with, attract, and mobilize resources; (4) to adapt and self-renew; and (5) to balance coherence and diversity (ECDPM 2008). Capacity development is the external facilitation of this internal learning process. System or organizational learning processes can be effective and lead to innovation only if the actors involved have adequate capacity to participate, to actively engage, and to potentially facilitate innovation processes. They also require the mindset and flexibility to allow others to participate.

In different contexts (under various governance structures, for example), investments in developing capacity will require adjustments, including a move away from agricultural sector programs and a link to more local economic development programs. Programs will need to focus not only on the public sector but also on community extension workers and private agencies. Two particular opportunities for investment, described in greater detail in the next section, are (1) to develop national capacity (independent agencies, universities, and other mediums) and higher education courses for a new type of advisory service provider in the public and private sector and (2) to develop capacity at the district level to coordinate and manage pluralistic extension systems.

Specific areas of capacity strengthening

The capacity of new extensionists is central to the success of pluralistic extension systems. They must master highly

Table 3.4 Investment Opportunities to Foster Pluralistic Extension Systems

Mechanisms and principles	Examples of investment	Cases and references*
Deconcentration	Programs to develop capacity in managing and implementing extension at the local level, including planning, monitoring, and evaluation. Differentiation of the public sector's roles at the local, meso, and central level in technical backstopping, coordination, and quality assurance.	National Agricultural Extension Program (PRONEA), Mozambique (DNEA 2005, 2007)
Decentralization	Develop integrated local government planning skills, as well as local governance skills and mechanisms, including skills to deal with downward accountability.	Agricultural Sector Development Program, Tanzania
Multiple service provision	Develop the capacity among service providers to coordinate and use learning mechanisms and skills. Support the development of local private service provision through capacity development and local matching investment funds for service providers. Develop farmer advisory service providers.	PRONEA, Mozambique (box 3.12)
Farmer empowerment	Develop associations and cooperatives to articulate clients' demands, empower them economically, and improve service delivery. Develop the triangle of (1) entrepreneurship, (2) access to (cooperative) credit, and (3) higher-level farmer lobby organizations.	Many international NGO programs and the Farmers Fighting Poverty Program (www.agricord.org); see also module 1
Outsourcing services	Develop capacity in the local government to contract for services based on principles of complementarity, synergy, and subsidiarity. Provide matching fund to contract local services based on cost-sharing and cost-recovery arrangements.	NAADS, Uganda (box 3.7 in overview) and the Agricultural Service and Producer Organization Support Project (PASAOP, Programme d'Appui aux Services Agricoles et aux Organisations Paysannes), Mali (www.maliagriculture.org)
Partnerships	Develop public-private partnerships to deliver services. Develop the capacity for coaching and facilitation.	PRONEA, Mozambique (see above)
Extension approaches	Strengthen facilitation skills and capacities to use learning approaches such as the Farmer Field Schools. Strengthen the market orientation of services at the national and district levels. Strengthen the targeting and differentiation of services for different categories of farmers and households, based on demand.	Farmer Field School program and marketing extension (http://www.farmerfieldschool.info/) African Forum for Agricultural Advisory Services (AFAAS–FARA 2009, TN 2); many (mostly international) NGO programs

Source: Adapted from DNEA 2007.

Note: See also table 3.1 in the overview for definitions and needs.

* The seven principles and/or a mix of them are applied in a number of national programs with support from organizations such as the International Fund for Agricultural Development (IFAD) and the World Bank.

technical information and skills as well as sophisticated facilitation and process skills (Blewett et al. 2008). More specifically, extension workers and their clients require:

- **Specific skills for planning and collaboration.** Stronger capacity is needed at the local level for planning, management, and coordination. As noted, major attention must be given to enhancing facilitation skills. These skills are instrumental in the multistakeholder platforms and processes that foster capacity development across stakeholders in innovation systems. Skills for communication with male and female farmers as well as differ-

ent kinds of stakeholders in the value chain or innovation system are needed.

- **Extension management skills.** As emphasized previously, the presence of multiple actors and approaches in pluralistic systems means that there is a strong need for coordination to avoid duplication of effort and wasted resources. Managing pluralistic extension systems at the local level requires individuals to develop new knowledge, skills, and attitudes. Management of synergetic services for local economic development, outsourcing, M&E, and quality assurance must take place in a satisfactory manner. New performance plans and indicators

must be established. Management for performance and outcomes must be a focus.

- **Skills related to understanding and improving accountability.** Clients must gain the capacity to participate in, monitor, and evaluate extension. They must be equipped to express their perceptions of the performance of advisory services, both in an upward (local, provincial, and national government) and downward (farmer groups, farmer forums, district councils) direction.
- **Technical knowledge** and skills are required for relevant actors in the value chain (production, processing, and marketing), including knowledge about access to all assets of the livelihood system.
- **Other skills that improve the quality of service provision.** At the local level, the variety of demand for services and the supply of services will present challenges not only for coordination but also for supervision and quality control. Service providers need to be registered and certified using established criteria and conditions in a transparent manner, mostly at the meso level. To a large extent, the actual quality of service providers' performance must be controlled by users themselves.

Other investment needs

This sourcebook presents other examples of investments to support pluralistic extension services. Examples in this module include enhancing facilitation and coaching skills (TN 4), capacity development in extension management and the development of agribusiness services (TN 2), and green services (TN 2).

POTENTIAL BENEFITS OF PLURALISTIC EXTENSION

To recapitulate, the need for pluralistic extension arises from the perception that specific services are needed for specific contexts, economic enterprises, livelihood functions, and above all different farmer categories, based on differences in entrepreneurship, poverty and gender. The development of pluralistic extension systems should enhance the competitiveness of local agricultural production within the context of local economic development, enhance local livelihoods, and ultimately reduce rural poverty, improve food security, and promote greater gender equality. Ideally, the outcome of pluralistic extension services is that different client groups in different contexts are satisfied with their access to services that they have

demand. Pluralistic extension systems provide services on demand as identified in the joint planning process, and based on the services available for each demand.

Models and lessons of pluralistic advisory services include Mozambique's PRONEA (box 3.12), Uganda's NAADS (box 3.7 in the module overview), and the programs in Mali (PASAOP) and Tanzania (Agricultural Sector Development Program) cited in table 3.4.

POLICY ISSUES OF PLURALISTIC ADVISORY SERVICES

The policy issues pertaining to pluralistic advisory services are correspondingly diverse. As discussed below, some of the more pressing issues involve ensuring the sustainability of pluralistic advisory services and preventing them from exhausting public resources; ensuring that services are provided in a more equitable way; promoting the institutional development of advisory systems; attending to the growing demand for advice on a host of environmental issues; and clarifying the changing roles and contributions of the public sector, private sector, and civil society within a pluralistic extension system.

Sustainability

Pluralistic extension systems are in principle more effective than other kinds of extension, but the outsourcing of public services will act as a major drain on public resources if not properly implemented. Outsourcing whole systems and creating parallel structures is costly and not very effective, as shown by the experience with NAADS and pilot activities in Mozambique (Heemskerk, Nederlof, and Wennink 2008). Instead it has proven more effective and cost-efficient to outsource specific functions, such as the development of bankable business plans. Enhanced coordination between public and private services at the local level will also make the system more efficient, while quality control of service provision will make it more effective. The best mix of public and private service provision and the level of public financing of such pluralistic systems will be subject to national and local policies. These policies in turn will be determined by the broad national vision for rural development, by locally empowered smallholders, the level of focus of local development plans, and the relative strength of public and private service provision. Other services can be provided in a better, or at least a more cost-effective, way by community extension workers. In local development plans, coordination is planned and financial sustainability can be pursued.

Social considerations: Equity, gender

Agricultural production is one of the main economic and income-generating activities for rural people, yet not all rural households have the same objectives in economic development, and they can place wide-ranging demands on advisory services. Local agricultural development plans can clarify the priorities for different categories of farmers (small-scale commercial, emerging and subsistence, food-security-focused, or part-time farmers, for example) and between male and female farmers. Services for local economic development need to differentiate among many categories of clients (households based on their different objectives, for example, and clients based on gender, age, and physical abilities). The emphasis on market-oriented services, cost-sharing arrangements, and the increasing role of community extension workers will influence access to services among different categories of clients. In users' assessments of service providers' performance, as well as in the downward accountability of service providers and extension managers, the consideration of equity issues remains important (Nederlof, Wennink, and Heemskerk 2008).

Institutional considerations

Pluralistic extension systems are expected to better address the wide variety of demands and at the same time make better use of the variety of service providers available. Although eventually the right mix of services is determined by the client and through payment for services, in the foreseeable future the public sector will still finance many of the required services (also based on cost-sharing arrangements but adjusted for different categories of farmers).

Pluralistic extension systems aim to develop better service provision for all, based on the complementarity and synergy of the public and private sectors. This public sector (at the local, meso, and national levels) will need to play a strong role in managing and coordinating extension activities in such a way that demand is adequately addressed, service providers are accountable, quality is assured, and lessons are learned among service providers, who are in competition at the same time. Eventually this coordination and accountability role will gradually shift to farmers and their organizations, once they will finance these services themselves.

Environmental implications

Demand for services related to wider environmental issues is increasing, owing to such factors as increasing

pressure on land, questions of access to land, market demands for sustainably produced products, and climate change. Public sector coordination of environmental and/or green services is needed to ensure that services are provided synergistically by the array of actors involved, such as:

- Farmers themselves, providing ecosystem services with and without incentives. Examples include maintaining biodiversity or soil fertility or receiving premium prices for using sustainable production methods.
- The private sector, dealing in CO₂ emission rights or the certification of sustainable and/or organic production.
- The public sector, engaging in climate change mitigation, erosion control, watershed management, and similar public good activities in environmental management.

In local development planning, an integrated approach to environmental management and the role of different service providers is needed.

Public and private sector roles

Private extension service provision, although publicly funded, contributes to the development of a new incentive system in which the quality and content of extension provision is more responsive to farmers' priorities. The transition to a system with privatized extension modalities and improved incentives takes time, public investment, and appropriate long-term plans. Private extension provision requires well-trained service providers and a certain level of capacity among farmers and local governments. Farmers' organizations must increase their capacity to contract, manage, and evaluate private extension provision. Decentralized political structures need the capacity to manage such systems.

An evolution toward private extension modalities should begin with themes that are most likely to elicit farmer demand and investment and are rarely provided by the public sector, such as the demand for agribusiness development services, particularly at the local level. Farmers in Ethiopia, Uganda, Mozambique, and Kenya have all identified the need for agribusiness development services (see TN 2). The public sector is likely to retain its responsibility for financing extension on themes such as environmental protection, although private delivery modalities may prove useful (Chapman and Tripp 2003).

LESSONS LEARNED

The lessons summarized here draw on several sources that have recently examined innovations and experiences with advisory services. The clusters of challenges identified include the management of pluralistic advisory service systems; the quality of the demand for advisory services, the quality of the supply, and the quality of the enabling environment (Nederlof et al. 2008).

Management of pluralistic advisory service systems

The decentralization of advisory service systems to the provincial or district level provides a major opportunity to improve the coordination of services at the local level. In most cases, to deliver a mix of public and private services effectively, local governments and authorities will need to improve their capacity to coordinate, manage, and direct services and service systems. Areas such as the facilitation of joint planning, the facilitation of learning among stakeholders, the regulation and certification of service providers, and quality control all need strengthening. It may be necessary to begin by building capacity in the institutions responsible for training administrators.

Capacities of the rural poor as service users

Investments are also needed for farmers and farmer organizations to strengthen their capacity to articulate their demands. To identify and address opportunities, smallholders need information about production, markets, and financial services. The more vulnerable farmers need specific services related to household food security. Farmer organizations must be able to: (1) lobby for an enabling policy and institutional environment; (2) give the rural poor a voice; (3) influence the adoption of socially inclusive research and advisory service agendas; and (4) become involved in the implementation of research, advisory, and business development services.

Provision of relevant, sustainable, and high-quality services

Extension services need to be relevant, sustainable, and of good quality. Service providers need to differentiate their offerings depending on the intended clients and their demands—for example, some services may focus specifically on vulnerable groups to enhance social inclusion, whereas others focus on value chain empowerment. Service

providers also need to design, in close participation with the rural poor, services that respond effectively to poor people's needs. Offering diverse services for different groups of clients will require different financing strategies. Some services for the very poor will have more of a social nature and be supported by the public sector, community, or farmer organizations. Business development services, in contrast, will evolve gradually from cost sharing to full payment (direct or indirect) by clients. The deployment and financing of service providers and services at the local government level must be managed and coordinated to enhance the coherence and synergy of services, increase the efficient use of services by the rural poor, and stimulate interaction and learning between service providers. The public sector also has an important responsibility to control the quality of service provision (through registration and certification, for example) and prevent bias (among agrodealers providing embedded services, for example).

To provide services that are relevant and of high quality in a financially sustainable way, effective linkages are needed between (1) productive investment and technological innovation and (2) financial services, risk management, and the reduction of vulnerability. Intermediary and facilitation services (not just the dissemination of information) are needed to secure those links (Nederlof, Wennink, and Heemskerk 2008; Wennink and Heemskerk 2006) (see also TN 4).

Enabling policies and institutional arrangements for pro-poor services

For pluralistic extension systems to grow and thrive, they will need to draw on evidence from the experiences of their wide stakeholder base to influence policy. Policy changes are likely to be needed to promote innovation, decentralization, and public-private partnerships and to empower rural people. Institutional innovations are also likely to be needed to foster interaction between farmer organizations and the private sector as well as research and advisory organizations. Examples include platforms for interaction, funding mechanisms, regulations, and certification mechanisms. Access to rural services will not improve without continuous interaction and flows of information between rural service providers and the rural poor to prevent information asymmetry. Policies that support the strengthening of social capital and farmer networks will create additional institutional pathways for improving interaction among stakeholders and enhancing the performance of the AIS.

RECOMMENDATIONS FOR PRACTITIONERS

The experience with pilot and larger programs for pluralistic extension systems offers a number of recommendations for practitioners. Practical, step-by-step recommendations include:

- Sensitize and get agreement among actors at all levels on the need to: (1) strengthen interaction and learning between public and private service providers; (2) involve public and private service providers on the basis of comparative and competitive advantage; (3) make an inventory of existing service providers (public, private, and embedded services); and (4) strengthen coordination at the local level between service providers by enhancing downward accountability (for example, to farmer organizations).
- Make sure that an enabling environment is in place for a pluralistic extension service system to develop. Specifically, develop a sectoral or local government policy that supports public-private interaction in service delivery.
- Open up the public service delivery system by introducing downward accountability mechanisms and performance contracts, and involving farmer organizations in service procurement (see IAP 3 for examples).
- Make provisions for local authorities to manage the coordination of service provision, contract services locally, and handle integrated budget management. For example, local authorities (such as farmer groups) may to acquire a legal identity.
- Empower farmer groups and organizations to articulate demand (for example, in planning and M&E).
- Develop local capacity for small-scale service providers.
- Develop capacity to use new extension approaches based on participatory action learning, such as the FFSs, Farm Business Schools, and so on.
- Develop the capacity of local smallholders' private service providers.
- Develop, use, and manage local performance contract and outsourcing mechanisms.
- Develop local extension management capacity, including capacity in planning, M&E, and downward accountability and transparency.

Farming as a Business and the Need for Local (Agri-) Business Development Services

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SYNOPSIS

Small-scale farmers, local farmer organizations, and other local entrepreneurs (such as traders and processors) benefit from advisory services with a business orientation. By helping these groups to access markets, financial and input supply services, as well as knowledge oriented to their particular value chains, local (agri-)business development services (LBDSs) support innovation and entrepreneurship. Capacity to provide LBDSs must be developed at the individual, organizational, and institutional levels. National universities and business schools need to develop curricula that reflect an entrepreneurial mindset in public and private service delivery. Farmer organizations have an important role to play in articulating demands related to local economic development plans, lobbying for the right type of business services, and providing services themselves. The development of private LBDSs for smallholders will require public investments. Many programs have realized that working with smallholders to strengthen agribusiness management, business plan development, and other elements of agricultural enterprises benefits from a process approach that starts with existing business service providers. If agribusiness services are fully subsidized, they may not reflect agribusiness demands and their sustainability will remain uncertain, yet services supported fully by demand will not be inclusive. Involving other value chain actors in financing local services for enhanced quality of production increasingly appears to be the most sustainable approach. The primary element for success in establishing local business development organizations is to base the intervention on local human and financial resources, which means that practitioners must emphasize linking with product marketing and processing, creating links with savings and credit activities, developing cooperatives, and building capacity.

BACKGROUND AND CONTEXT FOR INVESTMENT

A new appreciation of small-scale entrepreneurship has emerged with the growing awareness that subsistence agriculture cannot eliminate rural food insecurity and that the commercialization of smallholder agriculture is integral to economic growth and development in many countries (Pingali and Rosegrant 1995; UNDP 2004b; DFID and SDC 2008; Jaleta, Gebremedhin, and Hoekstra 2009). Welfare gains from market-oriented production arise from specialization that builds on and creates comparative advantages, from the potential for large-scale and/or intensive production, and from the dynamic effects of technological, organizational, and institutional change that arise through the flow of ideas from exchange-based interactions (Jaleta, Gebremedhin, and Hoekstra 2009).

Small-scale farmers and their emerging enterprises require local services that help them integrate into value chains (chain empowerment) and relate to other chain actors (traders, processors) and services (value chain finance) (Webber and Labaste 2010; KIT, Faida Mali, and IIRR 2006; KIT and IIRR 2008, 2010). These “local agribusiness development services” (LBDSs) improve the performance of a small-scale enterprise oriented to agricultural production, be it individual or cooperative, in accessing markets, financial services, and enhanced agribusiness environments.¹ LBDSs encompass training and advisory services, market information services, technology, and business linkage information (UNDP 2004a). By improving the efficiency and competitiveness of agribusinesses in specialized and quality production, agro-processing, input use, and produce marketing, LBDSs help to close a critical two-way gap between smallholders and markets: Small-scale, entrepreneurial farmers need better links to markets and value chains, while market actors

(including small-scale traders, processors, manufacturers, and exporters) need sustainable sources of produce from smallholders. Figure 3.1 depicts the roles of LBDSs in relation to local product value chains. Box 3.13 summarizes the effects of successful LBDSs in Uganda.

Capacity for providing business services is generally confined to nonprimary production and/or medium-scale enterprises in the private sector in urban areas. In rural areas, the public sector and civil society provide most advisory services and concentrate on agricultural production. In their current form, these advisory services cannot cope with farmers' growing demand for services oriented to markets and value chains. Nor can they cope with growing demands for sustainable sources of produce from other

Figure 3.1 Roles of Local Agribusiness Development Services in Relation to Actors in the Agricultural Product Chain and to Support Services



Sources: Adapted from Wilk and Fensterseifer 2003; Roduner 2007; NAADS 2010 (unpublished); and KIT and IIRR 2010.

Box 3.13 Effects of Local Business Development Services for Farmers in Uganda

In Uganda, local business development services were identified as offering the key support required to prepare business appraisals, develop marketing plans, apply for bank credit, and obtain advice on financial and legal matters. Farmers' demand for these services widened the involvement of private agricultural service providers in helping farmers with market-oriented production.

Sources: NAADS 2010 (unpublished); Friis-Hansen and Aben 2010.

actors in the value chain, including national and international exporters.² The limited individual, organizational, and institutional capacity to develop small-scale agribusinesses locally clearly remains a major constraint to market-oriented production.

INVESTMENT NEEDED

Different forms of investment can strengthen agribusiness development services catering to diverse groups of farmers and entrepreneurs. These strategies include reforming public extension systems (building capacity and balancing public and private service provision), developing the capacity for private LBDSs, and developing agribusiness centers for service provision and learning. In practice, a mix of strategies is usually followed, as in pluralistic extension systems (TN 1).

Reforming public service providers and offering services through public and private channels

Public extension systems can respond to demands for local business development through various combinations of reforms involving capacity building, reorganization, and complementary public, private, and nongovernmental service provision. Some public systems strengthen competencies in business development by reorienting programs and staff; others choose to recruit personnel with the required skills (usually recent graduates of universities and professional training institutes). Mozambique strengthened capacity to provide more market-oriented, demand-driven services by outsourcing some services to large-scale farmers, companies, and NGOs (see box 3.12 in TN 1) and involving more smallholders in Farm Business Schools and in developing business plans. At the district level, Mozambique organized farmer-promoters to supply advisory services and inputs (box 3.14). In Ethiopia and Uganda, business services were provided by cooperative unions to primary cooperatives (see <http://apf-ethiopia.ning.com/page/business-development> and <http://apf-uganda.ning.com/page/farmers-organisations>). Some business development services are simply unavailable from the public advisory system and need to be outsourced to the private sector or civil society, as with NAADS in Uganda (box 3.15) (Friis-Hansen and Aben 2010; van Weperen 2011).

Some countries leave the provision of business development services solely to private entities such as produce boards (for any number of commodities, such as cotton,

Box 3.14 Farmer Agribusiness Promoters in Mozambique

Owing to major public and international NGO investments in agribusiness at the district level in Mozambique, farmers' demand to become more market-oriented has grown rapidly. Because only a limited number of public extension workers could meet that demand, District Services for Economic Activities (SDAE, Serviço Distrital de Atividades Económicas) involved large numbers of farmer-promoters in different advisory services. Farmer promoters are involved in small-scale input supply and related advisory services, such as cashew spraying, chicken vaccination, groundnut pest control, and similar activities. Smallholders with knowledge related to market access increasingly participate in the development of smallholder business plans, as pioneered by NGOs in various Local Economic Development Projects. The Farmer Field School (FFS) program, in which farmers serve as facilitators, has been expanded to all provinces. The Field School approach is also used widely for enhancing market-oriented farm management in Farm Business Schools.

Sources: DNEA 2007; Kahan 2007, 90–92.

coffee, and cashews) or value chains with their own brands (box 3.16). The risk is that services geared to the demands from particular subsectors or value chains will exclude many small-scale farmers and entrepreneurs. One possibility is to provide startup capital for private providers of business development services at the local level, based on business plans and matching funds, and at the same time offer incentives for current public and private business service providers to meet the needs of small-scale entrepreneurs rather than focusing exclusively on medium-scale operations, as done in Mozambique.³

An important aspect of these various innovations in offering LBDSs is that public advisory systems need mechanisms to capture and share the lessons emerging from them. They must open up and develop alliances and networks for learning and interaction between different actors from different value chains and services, especially through partnerships, multistakeholder platforms, and networks (www.kit.nl; http://www.delicious.com/tag/apf_ethiopia).

Developing private capacity to deliver local business services

Service providers' skills can be strengthened through a series of related investments at different levels. Often an initial step is to develop the capacity of existing, often urban-based private organizations to work in rural areas with

Box 3.15 Developing Small-Scale Agribusinesses in Uganda: Strategies and Outcomes

The National Agricultural Advisory Services (NAADS) program sought to enhance small-scale entrepreneurship through efforts to develop value chains and widen access to market-oriented production services. Since 2002, NAADS have made considerable progress. About 50 enterprises have been selected for development and promotion, more than 45,000 farmer groups were engaged in market-oriented enterprise development and promotion, and 200 higher-level farmer organizations were established. Public-private partnerships were formed to support a substantial number of out-grower schemes involving “nucleus” farmers. The nucleus farmer strategy encourages small-scale farmers to increase their market orientation by providing value-adding and agroprocessing facilities as well as links to markets.

Sources: Authors; Benin et al. 2007; Friis-Hansen and Aben 2010.

As a result of these efforts, more small-scale commercial farmers started to emerge, and their production rose to such an extent that more organized marketing and agroprocessing facilities were needed. The private enterprises and private service providers emerging to support this growth still require capacity building and enabling policies to sustain their development. Other challenges remain in scaling up the successful aspects of NAADS. Access to credit and inputs can be problematic, and farmers' empowerment in value chains is still limited by a lack of capacity, information asymmetries, poor links among key players along the value chain, and markets characterized by low activity, low volumes, and other symptoms of poor competitiveness. Additional public investment is needed to complement the efforts of the private sector in developing agribusinesses at the smallholder level.

Box 3.16 KILICAFE, a Local Agribusiness Service Provider in Tanzania

KILICAFE is the name of a brand and farmer organization for specialty Kilimanjaro coffee. The smallholders who are members of KILICAFE have come to play a major role in interactions with agricultural service providers, including providers of research, advisory, financial, and input services. Aside from linking producers to markets, traders, and millers, KILICAFE provides a range of services to its members. At the Farmer Business Group level, KILICAFE provides pulping services; at the chapter level, it works to strengthen Farmer Business Groups; and at the national level, it offers marketing and financial services. Services include credit links and financial management of loans for working capital and for establishing central pulping units. KILICAFE sources financing from donors and/or financial institutes to purchase central pulping units and issues repayments from coffee sales to the Farmer Business Group on four-year term loans. Input credits are organized at the chapter level, where each chapter Annual General Meeting sets limits on how much to spend on inputs per kilogram. These credits are not cash loans but guarantees to input suppliers for future payments. Marketing is done by sending green coffee samples to the Coffee Board (for buyers at local auctions) and shipping samples directly to overseas coffee roasters (for direct exports).

Source: Wennink, Nederlof, and Heemskerk 2007.

KILICAFE provides technical advisory services and training, such as training farmers in production methods to improve the quality of their product, training in central pulping unit operations, and training in business management. These services are provided at the Farmer Business Group level through seminars that are open to all members. In addition, leadership training is conducted at the chapter level for all Farmer Business Group Management Committee members (chairpersons, secretaries, and treasurers). This leadership training empowers smallholder farmers to own fixed assets, which can be used as collateral for bank loans. KILICAFE also provides communication services such as a quarterly newsletter, radio broadcasts, and website (www.kilicafe.com), all containing information on coffee price trends, a farm activities calendar, association events and activities, and new developments.

Farmer Business Group members also demand other services from KILICAFE, such as supplying agricultural inputs well in advance. Some groups want KILICAFE to clearly specify coffee processing quality standards and ensure adherence by all Farmer Business Groups. To achieve uniform quality and obtain premium coffee prices, producers need to use only recommended technologies, although low prices also influence the adherence to quality-enhancing standards.

entrepreneurial smallholders (TN 4). Another important building block is to strengthen the capacity of private business development service providers in rural areas to support local development of basic farm business plans, market studies, and feasibility studies (DNEA 2007). Complementary investments involve developing multistakeholder innovation platforms or networks to assemble all actors in a particular value chain at the local level (to initiate collective action for local business development) and at the national level (primarily for advocacy). Investments in Farm Business Schools, such as those implemented through FAO in Botswana, Kenya, Malawi, Nigeria, and Zambia, will assist farmers in expressing demand for LBDSs (Kahan 2007:90–92; Malindi 2011). Finally, management capacity will be needed at the district or local government level to match the demand and supply of LBDSs (TN 1) in addition to registering, supervising, and evaluating them.

The source of human resources to provide LBDSs must not be neglected. Universities, professional education

institutes, and vocational training institutes need support to update their curricula to reflect the growing demand for capacity in agribusiness, marketing, and entrepreneurial skills. A vital part of curriculum change is for these institutions to develop the capacity to train, coach, and support local providers of agribusiness development services (see <http://ruforuminnovationsproject.blogspot.com>). One such initiative is Business Minds Africa: Professionals for Agricultural Entrepreneurship in East-Africa (<http://www.businessmindsafrica.org>), a partnership between East African Universities, RUFORUM (see module 2), International Institute of Rural Reconstruction (IIRR), the Royal Tropical Institute, and Van Hall Larenstein University of Applied Sciences, Wageningen.

Business development service centers

Another potential area for investment is to provide services through a “one-stop shop” mechanism, in which any

number of services (technological, business development, financial, and input supply, for example) are offered in a central location. These services centers can have additional objectives of learning and training and are mostly run through public-private partnerships. Examples include agribusiness centers (box 3.17), agribusiness incubators, and local economic development agencies, all of which could be designed to provide integrated LBDSs for small-scale farmer entrepreneurs. Services could include starting and registering a business, farm business planning, access to finance, training, and technical advice. Agribusiness incubator programs support emerging small-scale farm businesses and build capacity through learning by doing (box 3.18; see also TN 3 in module 5). Local economic development agencies, funded by the public sector, foster public-private partnerships at the local level (examples have been documented in Mozambique; see UNCDF 2009).

Investments are also needed at a higher level for mentoring and coaching these services. As part of public investment programs, national capacity should be developed for supporting business development services at the district level, with the aim of establishing and strengthening private local providers (boxes 3.14 and 3.18). In Mali (box 3.18) and Mozambique (Eduardo Mondlane University's Sustainable Trade Academy in Chibuto), an agribusiness incubator concept was also used to improve university graduates' capacity in small-scale enterprise development.

POTENTIAL BENEFITS

The potential benefits of LBDSs for smallholder farmers include increased entrepreneurial knowledge, better market linkages, enhanced access to credit, and better marketing opportunities. Smallholders have expressed this demand and given the opportunity will refocus extension on these more market- and value chain-oriented agricultural advisory services (Webber and Labaste 2010; Friis-Hansen and Aben 2010; KIT, Faïda Mali, and IIRR 2006). Services to develop local farming businesses provide support to producers, traders, processors, and other actors farther along the value chain. Each group has different needs and requires different funding arrangements, which can be local, regional, or national. Service providers can also support the development of local economic development plans and strategies. Anticipated impacts among smaller-scale farmers and entrepreneurs include enhanced rural income (both directly and through employment) through enhanced small-scale entrepreneurial activity, based on the use of local resources and competitiveness (Webber and Labaste 2010).

POLICY ISSUES

LBDSs, public as well as private, need an enabling environment to make an impact. Wherever options and opportunities exist with respect to financial services, and wherever markets and market infrastructure exist and function

Box 3.17 Casas Agrárias in Mozambique: Lessons from One-Stop Agribusiness Centers

Around the town of Lichinga in Mozambique's Niassa Province, farmer associations established Casas Agrárias with support from OIKOS (a Portuguese NGO) and Estamos (a local NGO). Casas Agrárias are agribusiness centers for marketing crops—for example, they can offer temporary storage and processing facilities—and facilitating access to credit, inputs, and agricultural advice. The centers' processing activities include milling maize, processing rice, and extracting vegetable oil from groundnuts and sunflowers. The Casas Agrárias are special entry points for supporting public-private partnerships, developing capacity in farmers' cooperatives, and involving national and provincial farmer organizations. Farmer management committees manage these centers, which have a limited number of extension staff

Source: Authors.

(four to five) from public or nongovernmental agencies, trained in input and output marketing. Important lessons from the Casas Agrárias are that investment in these centers must focus on developing capacity among at least four to five people for each center to maintain its services, training staff and farmers in agribusiness management, and offering specialized training in storage and input supply for farmers and cooperatives. Another lesson is that Casas Agrárias need to become sustainable and autonomous. As soon as possible, they must be handed over to farmer cooperatives and unions to operate, supported with adequate financial and administrative management training, and linked with district savings schemes.

Box 3.18 The Cheetah Network Integrates Agricultural Education and Business Incubation in Mali

Business incubators are programs designed to accelerate the successful development of entrepreneurial activities through an array of business support resources and services, developed and orchestrated by incubator management and offered both in the incubator and through its network of contacts. Incubators vary in the way they deliver their services, in their organizational structure, and in the types of clients they serve (see module 5, TN 3).

Mali's national agricultural research organization (Institut d'Economie Rurale, IER), national agricultural university (Institut Polytechnique Rural de Formation et de Recherche Appliquée, IPR/IFRA), United States universities, and small-scale subsistence farmers formed an alliance to develop the Mali Agribusiness Incubator Network ("Cheetah Network"). Through its business incubators, the network identifies and assists entrepreneurs in efforts related to agriculture. The alliance led university staff and graduates to review and revise course curricula significantly to

develop more skills and change mindsets related to promoting small-scale agribusiness in Mali and the United States.

The Cheetah Network supported male and female graduate students from the agricultural university in creating a number of entrepreneurial incubators (essentially, small clusters of small-scale enterprises focused on a similar goal). One cluster involved a women's cooperative in Zantiebougou focused on producing, processing, and storing shea butter for export and on developing a high-quality market for its products in the United States and Canada. Another cluster involved the production of certified seed potatoes in Borko and Gao for regional export. The entrepreneurial incubators have strong elements of learning for farmers as well as graduate students and staff. They aim at institutional sustainability through their links with research and the university and at financial sustainability through the introduction of fee-for-service systems.

Source: USAID 2009.

properly, LBDSs can be appropriate. National policies and local government regulations (for example, those governing input supply and marketing) must foster the development of entrepreneurship by ensuring a level playing field, and public agencies must not interfere in input and output markets. Additional policy issues for LBDSs include:

- **Social targeting.** Small-scale agribusiness entrepreneurs often constitute only 1–2 percent of rural households, yet *emerging* small-scale entrepreneurs may constitute up to 25 percent. Another large category of households has limited capacity for risk, focuses on food security, and relies on multiple income sources (remittances, local agricultural labor, petty trading, and others). Policies that support efforts by these groups to organize—in cooperative enterprises, outgrower schemes, contract farming, and farmer shareholding in marketing and processing enterprises—make it easier to address their varied entrepreneurial capacities and level the playing field. Close attention should also be given to the implications of gender in value chain development and agribusiness development services.⁴

- **Local governance.** Local governance influences the local development context (including prevailing policies), which influences investments in developing private agribusiness services (Friis-Hansen and Aben 2010). Elements of the local development context that influence LBDSs include: (1) the emphasis on local public-private partnerships, (2) synergy between local economic development programs oriented to value chains and livelihood systems, (3) the involvement of farmer organizations; and (4) local capacity to manage multistakeholder platforms, networks, and interaction between service providers (TN 1).

- **Public and private sector roles.** Policies influence whether and how interaction between value chain actors and private supporting services are brokered by public agencies, locally and nationally (Webber and Labaste 2010). Locally, the public sector is more prominent in empowering farmers through local economic development, whereas the private sector often predominates in value chain development. These roles need to become synergetic for value chain integration (KIT, Faïda Mali, and IIRR 2006). Three additional considerations affect

public and private sector roles in LBDSs. First, LBDSs facilitate integration between farmers and others in the value chain, increasing the likelihood that value chain partners will provide financial services for farmers (KIT and IIRR 2010). Second, private LBDSs tend to have greater capacity for facilitating access to financial services. Third, public support is needed to develop the capacities of service providers, coordinate local providers, empower farmers, and provide professional and vocational training in business development.⁵

- **Local entrepreneurs and environmental services.** LBDSs can support smallholders in identifying incentives for sustainable production, coping with the effects of climate change, supplying green services (to enhance farmers' ecosystems or sustain the environment), and addressing demands from specific value chains (organic food). Incentives can include sharing in the profits from forestry concessions, hunting licenses, and carbon emission rights; premium prices for certified organic produce; or agronomic strategies promoted by the public sector to prevent soil nutrient mining (Odada et al. 2008; Pyburn, van der Lee, and ter Heegde 2011; box 3.19).

- **Sustaining local service provision.** For LBDSs to be sustainable, they must be supported by the value chain actors or customers involved (see module 5). In the transition to more value chain- and market-oriented production, however, the public sector has a role in providing services, especially to smallholders who cannot afford them at first. Farmers indirectly finance services for traditional export commodities and are beginning to do so in emerging value chains (IAP 3 gives other examples of embedded services).⁶ Some national programs have partial fee-based systems for delivering LBDSs, including Uganda (for NAADS; see box 3.7 in the module overview) and Azerbaijan (Lamers et al. 2008).

LESSONS LEARNED

As the examples in this note indicate, much of the experience in providing LBDSs to small-scale farmers, cooperatives, and other agricultural entrepreneurs has been gained through pilot projects funded by donors and NGOs. National programs for advisory services, such as those in Tanzania, Mozambique, and Uganda, have started to incorporate these

Box 3.19 A Successful Business Model for Mozambique's Farmers to Provide Environmental Services

With the support of a specialized service provider, Envirotrade, a prize-winning community project in Mozambique developed a successful business model for the sale of carbon offsets to support the conservation of forests and the planting of new ones. The scheme, one of three winners of an international climate grant competition, is being rolled out to other environmentally sensitive sites in Africa.^a Sustainable farming practices introduced as part of the Nhambita Community Carbon Project increased cashew and fruit yields and improved livelihoods for about 1,300 families. Since its launch six years ago, the initiative, based in the buffer zone of the Gorongosa National Park, has traded more than 120,000 tons of CO₂, earning the community over US\$1 million. Participants are paid for carbon stored by the trees they plant, the forests that they manage,

and the fires that they prevent. For example, Felício Lucas Melo, 33, has two plots that can sequester over 55 tons of CO₂ per year, earning him US\$244 in direct payments and an additional US\$25 that is paid into the community carbon fund, which is used for improvements to schools, clinics, and wells.

Envirotrade is a Mauritius-based company with offices in both the United Kingdom and South Africa and project operations in Mozambique. Its business model is not a substitute for resolute international action to address the issues associated with human-induced climate change, but it offers a means for concerned businesses and individuals to link with forest farmers in developing countries to change how natural resources are used and reduce harmful environmental impacts.

Source: "Cash from Carbon," *Spore* (143) October 2009, http://spore.cta.int/index.php?option=com_content&task=view&lang=en&id=1016&catid=7, accessed July 2011.

a. Another green community program, the Kakamega Forest Again Project in Kenya, also won the top US\$35,000 prize in the contest, organized by Hyundai Motor America and Carbonfund.org, in conjunction with the Climate, Community, and Biodiversity Alliance.

experiences in the drive toward more value chain- and market-oriented agricultural advisory programs and systems (van Weperen 2011). Demand from farmers and their organizations for high-quality business development services at the local level is burgeoning. Confirmation of this demand emerged in an analysis by the AgriProfocus country focus program with farmer organizations and their supporting agencies in Ethiopia, Kenya, Mozambique, Niger, Rwanda, Uganda, and Zambia.⁷ Many countries have sought to meet the demand for local business services through an increasing emphasis on local economic development planning at the district level, with the involvement of key local stakeholders in the public and private sector (see <http://go.worldbank.org/EA784ZB3F0>). It is clear, however, that demand for LBDs cannot be met by public service providers unless they receive adequate public funding.

Based on the large number of pilots to date, a number of lessons have emerged for practitioners. The lessons are grouped around key issues: (1) creating awareness; (2) building agribusiness service capacity; (3) implementation; (4) and developing dedicated agribusiness service organizations.

Creating awareness and enhancing demand articulation

At the start of a program for LBDs, the level of commercialization of smallholder agriculture and the corresponding demand for different types of service providers must be analyzed. Demand is strongly determined by the economic, regulatory, and service context (Jaleta, Gebremedhin, and Hoekstra 2009).

An inventory of available local agribusiness service providers at different levels and by sector (public, private, NGO, and civil society) can avoid duplication and contribute to synergy based on public-private partnership. This kind of inventory is often the basis for a local farmer entrepreneur development strategy, as part of a local economic development strategy.

Farm Business Schools and cooperatives have an important learning role in promoting entrepreneurship among farmers, but initially they require external facilitation. Farm Business Schools facilitate learning about production, management, business finance, and marketing. Useful tools have been developed for this purpose by FAO (Dixie 2005) and the Swiss Agency for Development and Cooperation (SDC) (Poitevin and Hossein 2006), including modules on understanding the market; supply and demand; helping farmers decide what to do; producing for the market; producing

profitably; postharvest handling; and improving market arrangements (KIT, Faida Mali, and IIRR 2006).

Farmer organizations have an important role to play in articulating demands related to local economic development plans and in lobbying for the right type of services. They also have a central role in ensuring that services remain oriented to their demands and in providing some services themselves (boxes 3.14–3.16). Higher-level farmer organizations are needed to influence the agribusiness context and interact with actors farther along the value chain.

Building agribusiness service capacity

An analysis of the capacity development context for business services is key. Often the capacity to strengthen providers of agribusiness services to smallholders does not exist. Nor is there capacity at the district level to manage local public-private partnerships to provide such services. The capacity gaps are particularly wide among local service providers and in the capacity available to develop, mentor, and coach these providers, leading to a need for capacity development at the individual, organizational, and institutional levels.

National universities and business schools still aim to produce civil servants rather than self-employed service providers. Aside from skill development, a special challenge for these institutions is to develop an entrepreneurial mindset in public and private service delivery. Interaction between course programs and the professional sector is needed for curriculum improvement based on demand (see module 2 and Spielman et al. 2008).

The development of private providers of local agribusiness services for smallholders also requires public investments, preferably through training and matching grants/credits for starting small-scale agribusiness services based on a business plan.

Different types of agribusiness development services are needed for different types of entrepreneurs and farmers. These services will often be specific to certain value chains or even to different levels of a given value chain. Many programs developed to offer small-scale agribusiness services have realized that working with smallholders to strengthen agribusiness management, business plan development, and other elements of agricultural enterprises requires a process approach. Programs often begin by working with existing associations and individuals, some of which, through coaching and facilitation over time (often two years), develop and graduate into small-scale entrepreneurs and enterprise cooperatives. A typical process like this in

Mozambique cost US\$300 to move a loosely formed association through seven steps to become a registered, market-oriented cooperative qualified to obtain financial services.

Implementing business development services at the local level

Business development is about chain development, facilitated by chain mapping and assessment (market orientation and risk assessment; local versus international markets; fostering an enabling business environment); chain engagement (developing a vision; building trust); chain development (participatory approach and ownership; addressing risks and savings; engineering an organizational development program; promoting entrepreneurial attitudes); chain monitoring and evaluation; and chain learning and innovation (KIT, Faida Mali, and IIRR 2006, Weber and Labaste 2010).

Services to develop small-scale farming businesses have a central role in facilitating access to input and financial services, but they have no role in directly supplying inputs and rural finance, which occurs in embedded services (IAP 3 and Roduner 2007). A distinction must be made between business development services and financial services. The public sector has a role in providing LBDSs to smallholders but not in directly providing financial services.

Who pays for LBDSs remains a major dilemma. If agribusiness services are fully subsidized, the services provided may not genuinely arise from agribusiness demands, private services may be crowded out, and the financial sustainability of the services will remain uncertain. If services are to be fully supported by the demand, larger enterprises may be able to pay, but others may be excluded. Involving other value chain actors in financing local services for enhanced quality of production increasingly appears to be the most sustainable approach (KIT and IIRR 2010).

To be scaled up, successful models of agribusiness development require a systems approach that pays attention to access to credit, access to high-quality inputs, the development of farmers' capacity, and the formation of public-private partnerships (box 3.15). A final lesson is

that the innovation required for farmers to improve the quality of their produce cannot be sustained by farmer organizations without proper incentives or premiums (box 3.16).

Developing dedicated agribusiness service organizations

The primary element for success in establishing local business development centers is to base the intervention on local human and financial resources, which means that practitioners must emphasize linking with product marketing and processing, creating links with savings and credit activities, developing cooperatives, and building capacity. More specifically (see the discussion of incubators in module 5):

- An agribusiness center requires a critical mass of staff trained in agribusiness management (at least four or five people) to maintain its services. Ideally it is governed with involvement from the private sector, but for smallholder producers it is often also supported by the public sector. Centers require adequate links with market actors, input suppliers, and financial services, including local credit and savings schemes.
- Incubators can incorporate an element of capacity building for more business-minded and market-oriented service providers through interactions with universities or business schools. This interaction builds capacity in the staff of the business development center, builds capacity in the students involved in the work, and influences the content of the related academic programs.
- Through training in financial and administrative management, centers must become autonomous as soon as possible and handed over to farmer organizations (local and national) and/or the private sector.

All programs directed at developing local agribusiness services must give considerable attention to fostering a long-term commitment to building these institutions in a stable policy environment as well to strategies that will ensure financial sustainability, based on cost sharing for the services that are delivered (World Bank 2010).

Extension-Plus: New Roles for Extension and Advisory Services

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SYNOPSIS

“Extension-plus” is a framework for investment in strengthening and reforming extension to be a strong partner and nodal agency within the AIS, providing technological and nontechnological services to farmers. The larger goal of investments in extension-plus is to strengthen the capacity of extension and advisory services to play a much wider role (a bridging role) and at the same time enhance the ability of other actors in the AIS to support producers in an integrated way. All current extension-plus arrangements have emerged from small pilot efforts that have expanded their scope and service provision based on experimentation, learning, and adaptation to local circumstances over time. Investments should focus on encouraging and enabling staff capacity to initiate small experimental projects in partnership with other organizations. Promoting the vision of extension-plus will prove challenging among public extension organizations unless reforms target the macro-institutional and policy context in which extension is practiced. Extension-plus can flourish only in organizational settings that have a culture of experimentation and learning. For cultural change in this direction to occur, it must be supported and legitimized unambiguously at the most senior levels of the extension service and allied organizations. Before designing the program and operational strategy for investment, it is advisable to undertake an institutional diagnosis to understand the range of organizations within the AIS, their expertise and activities, and their patterns of interaction. The scope of the specific extension investment and the priorities will vary in relation to the national, district, and local situations.

BACKGROUND AND CONTEXT FOR INVESTMENT

The limitations of a single model of extension and advisory services for all kinds of situations are now well recognized.

There is an increasing realization that new extension approaches need to emerge locally, based on experimentation, learning, and adaptation to prevailing circumstances. The need for extension to partner with other organizations and individuals with varied skills and competencies to provide integrated support (technical, organizational, marketing) to producers is also apparent. A number of examples emerging in the public and the private sectors illustrate how the conventional technology transfer role of extension is being expanded to improve its relevance to contemporary agricultural and rural development (Sulaiman and Hall 2004a, 2004b). Many of these examples appear to demonstrate the value of an expanded mode of extension referred to as “extension-plus” and provide important guidelines on design and implementation of new investments.

Extension-plus is a framework for investment in strengthening and reforming extension to be a strong partner in the AIS. It is especially relevant in the context of reforming public extension organizations in developing countries, where extension is struggling to find a relevant role to deal with contemporary rural and agricultural development challenges. The key elements of extension-plus are:

- A broad scope of service provision (beyond technology transfer).
- The extensive use of partnerships to fulfill an expanded mandate.
- A learning-based approach.
- Negotiations with a wide range of stakeholders for developing workable and effective service arrangements.
- An institutional mechanism to represent clients’ interests at the management level, so the program remains accountable to its clients.

The larger goal of investments in extension-plus is to strengthen the capacity of extension and advisory services to play a much wider role (a bridging role) and at the same

Table 3.5 Shifting Extension to Extension-Plus

Aspect of extension	Shifts from:	Shifts to:
Form/content of extension	Technology dissemination Improving farm productivity Forming farmer groups Providing services Market information	Supporting rural livelihoods Improving farm and nonfarm income Building independent, farmer-operated organizations Enabling farmers to access services from other agencies Market development
Monitoring and evaluation	Input and output targets	Learning
Planning and implementation strategy	Doing it alone	Through partnerships
Sources of innovation in extension	Centrally generated blueprints for wider implementation	Locally evolved (through ensuring right kind of support for local experimentation), with diverse approaches and multiple partners
Role of technical research	Technology development	Source of technical expertise and supporting adaptive research
Approaches	Fixed/uniform	Evolving/diverse
Capacity development of staff	Training	Learning by doing, facilitated experimentation
Capacity development of extension system	Personnel and infrastructure	Development of linkages and networks
Policy approach	Prescriptive/blueprints	Facilitating evolution of locally relevant approaches
Introducing new working practices	Staff training	Changing organizational culture through action learning
Underpinning paradigm	Transfer of technology	Innovation systems

Source: Sulaiman and Hall 2004a.

time enhance the ability of other actors in the AIS to support producers in an integrated way. Table 3.5 describes key shifts needed to operationalize extension-plus.

INVESTMENT NEEDED

The most innovative investment element of this approach is the explicit acknowledgment that investment should be concerned with creating or enhancing the capacity of the current innovation system for interaction and coordinated action, so that the producers receive a wider range of support and services. Extension organizations traditionally have some capacity for interaction with research. In this case, however, extension has to widen its networks to connect producers with different sets of service providers. This means that extension should partner with a number of different agencies and develop specific arrangements in line with local circumstances. Investments should focus on encouraging and enabling staff capacity to initiate small experimental projects in partnership with other organizations. By facilitating small projects experimentally and assisting staff to reflect on their meaning and outcomes, these investments will build skills related to experimentation and learning. Table 3.6 summarizes the kinds of investments needed under extension-plus.

All current extension-plus arrangements have emerged from small pilot efforts that have expanded their scope and service provision based on experimentation, learning, and adaptation to local circumstances over a period of time. Box

3.20 provides three examples—two from India and one from Bangladesh—of initiatives that served as nodes linking producers to technology and nontechnology services, including marketing. Each initiative supported the development of user groups that became the basic units for implementing programs. For example, in India’s Kerala State, where smallholder and marginal farmers dominate agricultural production, almost 93 percent of land holdings are marginal (less than 1 hectare), and about 5 percent are small (1–2 hectares). Kerala imports around 80 percent of its fruit and vegetable requirements, primarily from neighboring states. In view of this dependency, the larger objective of the program described in box 3.20 was to develop a replicable model for horticultural development to diversify agriculture. The model, piloted in seven districts, was scaled up to cover all districts in the state after donor funding ended.

In the second example in box 3.20, BRAC (an international NGO) shifted from community development in Bangladesh toward a more targeted approach based on village organizations in 1977. Currently BRAC’s operations reach about two-thirds of the population of Bangladesh. BRAC’s outreach covers all 64 districts and 78 percent of villages in Bangladesh. Eighty percent of its funds are internally generated.

In the second example from India in box 3.20, a program to foster horticultural production in South Gujarat expanded from 44 families in 1982 to more than 23,000 families in 2010. Most activities are now managed by

Table 3.6 Investments Needed under an Extension-Plus Scenario

Major investment areas	Purpose
Pre-project phase	<ul style="list-style-type: none"> – Analyze past and ongoing interventions by different agencies. – Institutional diagnosis to understand the patterns of interaction among the different agencies and the institutional and policy environment. – Understand demand for support. – Develop a shared vision of objectives and potential approaches and identify potential partners.
Institutional and human capacity strengthening	<ul style="list-style-type: none"> – Place staff with diverse expertise (networking, technical knowledge, organizational development, market/business development, credit and financial operations). – Develop a new organizational culture that focuses on experimentation, openness to new ideas, reporting and learning from mistakes, regular staff reflection, incentives for good performance, and guidelines for staff assessment. – Encourage appropriate institutional changes to enhance the organization's ability to act as a nodal agency, capable of brokering relations with other actors, by broadening its mandate and using partnership and learning as the key operational strategies.
Technical support	<ul style="list-style-type: none"> – Address the current weaknesses in technology use and find opportunities to bring in new technologies for production, postharvest handling, value addition, and export through contract research, recruitment or secondment of technical specialists in the program, or bringing experts on short consultancy assignments.
Credit and financial support	<ul style="list-style-type: none"> – Identify the current bottlenecks related to the availability of credit at reasonable rates and address them. This process might include bringing the credit issue to the right policy actors and negotiating with financial institutions.
Organizational development	<ul style="list-style-type: none"> – Organize producers to enhance their capacity to deal with different agencies, work collectively, and evolve new governance arrangements (see module 4, TN 5, on organizational change).
Market development	<ul style="list-style-type: none"> – Improve farmers' ability to negotiate and receive a fair price for their produce. This process would involve strengthening the existing value chains, developing more equitable institutions related to procurement and pricing, and, at times, creating new value chains by linking producers to new markets.

Source: Author.

Box 3.20 Extension-Plus: Examples from the Field

Kerala Horticultural Development Programme, India. Conceived in 1992, the Kerala Horticultural Development Programme (KHDP) aimed to improve the circumstances of Kerala's fruit and vegetable farmers by increasing and stabilizing their incomes, reducing production costs, and improving the marketing system. The KHDP worked with fruit and vegetable farmers to promote self-help groups. It trained three farmers from each group to become master farmers who could deal with production, credit, and marketing. It promoted the concept of credit to farmers who leased land, promoted group marketing, and established modern seed processing and fruit processing plants. To generate and access locally relevant technical knowledge, KHDP entered into contract research with the local agricultural university and strengthened the skills of farmers in participatory technology development. The total outlay for KHDP was €36.76 million, of which the European Commission contributed 78 percent and the state government contributed the remainder. Though

it ended in December 2001, KHDP reinvented itself as the Vegetable and Fruit Promotion Council, Kerala (VFPCCK, www.vfpck.org), a company in which 50 percent of the shares are held by producer groups. Since then, VFPCCK has expanded its activities, coverage, and funding sources, obtaining some funds from government programs. All programs related to fruit and vegetable promotion are undertaken through VFPCCK, whose approach was eventually extended to all districts in Kerala. The company directly reaches more than 132,000 vegetable and fruit farmers in Kerala.

BRAC's Economic Development Programme. The Economic Development Programme of BRAC (an international NGO that originated as the Bangladesh Rural Advancement Committee) is the cornerstone for all of BRAC's development work in Bangladesh. The Development Programme covers microfinance, institution building, income-generating activities, and program support enterprises (such as seed production, disease diagnostic labs, and produce processing and

(Box continues on the following page)

marketing). While BRAC believes that microfinance is necessary to break the cycle of poverty, it places equal importance on microenterprise development services to maximize the return obtained by the poor. Unlike standard business development programs, which offer some mix of generic training and marketing services, BRAC has developed an integrated, sector-specific approach to enterprise development for the poor. BRAC has identified six sectors in which large numbers of low-income women can be productively engaged at or near their homes: poultry, livestock, fisheries, sericulture, agriculture, and social forestry. For each of these sectors, BRAC has developed a set of services that comprises training in improved technologies, ongoing supply of technical assistance and inputs, monitoring and problem solving as needed, and marketing of finished goods. BRAC evolved this model through continuous iteration and experimental learning. This program has so far organized 8.45 million poor and landless people into 284,825 village organizations, which are the basic units of the program.

The Wadi Programme of Dharampur Uththan Vahini, India. Dharampur Uththan Vahini (DHRUVA, “Vanguard of Awakening in Dharampur”), an associate organization of the BAIF Development and Research

Foundation, works in 200 tribal villages in Valsad, Navsari, and Dangs Districts of South Gujarat. DHRUVA’s Wadi Programme, which facilitated the establishment of fruit orchards (*wadis*) on land belonging to poor tribal families, started with 44 wadis in 1982. Village-level peoples’ organizations have been pivotal in implementing the Wadi Programme’s activities. The organization encouraged the formation of a cooperative for wadi farmers in the Vansda area to help them market their produce collectively. Produce from cashew and mango trees is sold to the cooperatives, which in turn sell them to the apex cooperative. DHRUVA helped the cooperative design appropriate systems to preserve and process horticultural produce (including cashews, mango pickles, jams, and jellies) and access local and urban markets under its Vrindavan brand name. Today, over 23,000 families from 400 villages have adapted the wadi model. Huge tracts of wasteland have been converted into orchards, which have contributed to improved livelihoods and the regeneration of natural resources. The project received funding from donors (including KfW) as well as government support for rural employment, tribal development, and funds from the National Bank for Agriculture and Rural Development.

Sources: Bhamoria 2004; VFPCCK 2009; BRAC 2010; DHRUVA 2010.

producer cooperatives and village organizations, with only marginal support from the NGO that initiated the program. The initiative has been acclaimed worldwide as a sustainable and replicable model for alleviating poverty.

POTENTIAL BENEFITS

A potential benefit of investing in extension-plus is the development of a sustained capacity for innovation. For instance, the most important contribution of the investments in KHDP, BRAC, and DHRUVA has been the development of a capacity for continuous innovation even after the end of external funding. Many externally funded projects fail to deliver once funding ends because they fail to develop the capacity to keep innovating. Box 3.21 summarizes the impact of some good practices from KHDP/VFPCCK. Table 3.7 lists some of the indicators that could be used to evaluate an extension-plus approach.

POLICY ISSUES

Promoting the vision of extension-plus will prove challenging among public extension organizations unless the reforms target elements of the macro-institutional and policy context in which extension is practiced. Extension-plus can flourish only in organizational settings that have a culture of experimentation and learning. For cultural change in this direction to occur, it must be supported and legitimized wholeheartedly and unambiguously at the most senior levels of the extension service and allied organizations.

Institutional issues

As indicated, some of the underlying “institutions” (norms, values, routines, and attitudes) that govern or shape extension in its current form constrain the adoption of extension-plus. For instance, many countries continue to

Box 3.21 Good Practices and Their Impacts for Kerala's Fruit and Vegetable Farmers

The good practices followed by KHDP and its successor organization, VFPCCK, produced a number of impacts:

- The program promoted the concept of organizing self-help groups of vegetable and fruit farmers and training certain farmers from each group in specific skills. VFPCCK currently works with about 6,800 self-help groups, of which 405 are run by women, and reaches more than 132,000 farmers.
- By working closely with 11 commercial banks, the program could help farmers obtain credit for cultivation of leased land. More than US\$5.6 million in credit was distributed in 2008–09, and VFPCCK also developed credit-linked insurance for farmers.
- Group marketing was promoted by establishing markets where farmers could bulk their produce for sale to traders and improve their bargaining position by obtaining information on market prices inside and outside Kerala. In 2008–09, more than 200 VFPCCK Farmers' Markets operating across Kerala sold 87,000 tons of produce valued at US\$20 million. The council supports these committees with infrastructure on a limited scale.
- Through its modern seed-processing plant, VFPCCK produced more than 38 tons of seed for 19 vegetable varieties in 2008–09, thereby contributing 50 percent of Kerala's internal seed production. Through participatory technology development trials with farmers, the council is promoting the cultivation of vegetables in the cool season.
- The council established a modern fruit-processing factory with farmers as stakeholders. Products from this factory are traded in domestic and international markets.
- An external evaluation and impact study of KHDP by the Xavier Labour Research Institute reported a significant increase in area under fruit and vegetables in 86 percent of the self-help groups and increased incomes in 75 percent of the groups. The same study also reported that the number of farmers receiving credit increased from 21 percent in the pre-KHDP period to 41 percent by 1999, with an increase in the efficiency of loan disbursal and an increase in the size of the loans.

Sources: XLRI 1999; VFPCCK 2009.

Table 3.7 Indicators That May Be Useful for Monitoring and Evaluating an Extension-Plus Approach

Output indicators	Outcome indicators
<ul style="list-style-type: none"> – Farmer groups or producer associations formed; groups' sustenance, maintenance of records – Formation of new markets; marketing and price realization – Training organized – New inputs and technologies distributed and/or purchased and used – Access to credit; credit use and repayment – New value-added products developed – Infrastructure developed; capacity utilization – Partnerships, new working arrangements, or new areas of collaboration; quality of interactions – Reforms promoted; changes in guidelines related to funding and collaboration 	<ul style="list-style-type: none"> – Increase in income, production, productivity; additional employment created – Sustenance of the arrangement; continuance, expansion, and impact – Enhanced capacity for collaboration and continuance of good practices; new partnerships formed; other institutional changes generated – New funding generated – Ability to respond to new demands – Governance mechanisms: how different stakeholder views are expressed and quality of response

Source: Author.

plan, implement, and evaluate extension centrally, which can stifle any divergence from prescribed procedures and restrict innovation and learning, particularly by mid- and lower-level staff. In many instances, extension maintains a

tradition of assessing performance in terms of technology adoption and upward accountability for resource utilization rather than by examining whether outputs were achieved and whether clients are satisfied. The reluctance to change

is reinforced by an extension policy dialog that continues to be couched in terms of a narrow conceptualization of extension as an agency transferring technology and improved practices from research stations to farmers (Sulaiman and Hall 2005).

Public and private sector roles

A first step in operationalizing extension-plus is to reach broad agreement that extension must be reinvented as a nodal agency that provides technological and nontechnological services to farmers. In other words, extension will need to partner with a large number of other public, private, and NGO agencies that provide many of the additional services that will be in demand. In most settings, partnership among these agencies has been the exception rather than the rule, given the great level of mistrust among them. Extension can play its wider role only after undergoing large-scale restructuring and institutional changes, which extension bureaucracies often have been reluctant to undertake. Some of these changes include a broadened mandate, partnership and learning as key operational strategies, and freedom and support for staff at district and block levels to experiment with alternative strategies.

Human resource issues

To implement this approach, extension organization would require new expertise. One way of obtaining this expertise is to create a core group of specialists with skills such as market development, organizational development, enterprise development, and agribusiness management. The extension curricula of universities and the content offered in extension training centers will also need to be reviewed to ensure that perspectives such as extension-plus are adequately covered.

Sustainability issues

To sustain the institutional changes and capacity developed through this approach, a clear exit strategy must be agreed upon by the donor and the stakeholders. Building community-based organizations (user groups, cooperatives, village organizations, self-help groups), shifting the operation and management of the program to these organizations, and enhancing the capacity of these organizations to perform their responsibilities and raise fresh resources are all important steps toward sustaining the approach, even after donor support ends.

LESSONS LEARNED

Implementing the extension-plus approach can involve a number of challenges:

- The fact that the final program details cannot be visualized in the beginning can make donors and national governments slightly uncomfortable. As the approach can be implemented only as a series of experiments, resource allocation in the initial stages can only be tentative.
- The approach requires high-quality human resources at different levels, representing more diverse kinds of expertise. Human resource costs as a percentage of the total investment can be quite high.
- Partnering with organizations with diverse types of expertise is critical. Partnering is not an easy task for organizations that have a long history of isolated or independent functioning. In such cases, implementation could be slow.
- Only when the organization has sufficient flexibility to deal with administrative and financial issues will this approach flourish. The program should have opportunities for reflection and learning and sufficient flexibility to respond to the demands and opportunities emerging from the field as the program evolves.

These operational issues are not insurmountable. The program should be fully aware of them and find ways of engaging the government and the donors to resolve some of these concerns. Box 3.22 describes how the KHDP/VFPCCK program met these challenges.

Some of the lessons learned from implementing extension-plus in varied settings are:

- The goals of the investment should be broad enough to provide integrated support to producers, improve competitiveness of the sector, or upgrade the production system to improve livelihoods, and so on. Broad goals are necessary to challenge extension to broaden its agenda.
- The investment should provide for hiring a mix of global and local expertise to support program implementation. It would be useful to get human resources on a long-term basis, starting with the design and inception of the program, to provide continuity and a shared vision of the objectives and approaches for implementation.
- Partnership with other organizations having varied skills should be the basic philosophy guiding the interventions.
- Continuous experimentation, reflection, and learning should be the basic approach for identifying relevant

Box 3.22 Experience with Innovative Activity in Kerala Horticulture

The most attractive feature of the program developed for fruit and vegetable producers by KHDP and its successor organization, VFPCCK, was the concept of integrating three main components of agricultural development: production (including support for research and development), credit, and markets.

To implement this concept, KHDP created a new organizational structure and management strategy. It hired the services of international and national consultants to support key areas of its operation: credit, implementing an agroprocessing program, technology, and training. The expatriate experts, who were on a long-term consulting assignment, brought new knowledge and fresh perspectives to the program as it translated its vision into action.

Another interesting feature of the program was the flexibility to change the type and nature of interventions as and when problems arose. This flexibility allowed the program to evolve over the years. In its early years, KHDP quickly found that it needed to organize farmers into groups to promote new technology, help access credit, and strengthen negotiating power through collective marketing. It entered into a contract research arrangement with the state agricultural university for technical backstopping, and when it found this arrangement was unsuccessful, it realized the importance of involving farmers directly in technology development and testing. Since

then, the program has promoted participatory technology development and testing. Initial serious setbacks in group marketing also caused the program to reflect and learn to overcome the problems. An additional problem was that traders perceived farmers' markets to be a threat, and considerable persuasion became necessary to convince them of the benefits they would receive from cooperating with the farmers' markets.

In the beginning, KHDP envisaged providing credit to farmers through cooperative credit societies. After encountering difficulty in mobilizing funds on its own, the program decided to arrange for commercial banks to supply the credit. Although the banks were reluctant to provide credit to landless farmers, KHDP's willingness to deposit its own funds with those banks encouraged them to take the risk.

The program paid explicit attention to learning along the way. It established a monthly review meeting of project managers that provided a forum for sharing knowledge and experience from implementation on the ground and served as the program's learning laboratory. Without this forum, the program probably would never have learned from its initial experiments, some of which failed. The donor (the European Commission) supported management's changes to the initial design, which to a large extent allowed the program to achieve its goals.

Source: Author.

strategies for implementation. The program should have sufficient flexibility to shift approaches based on this learning.

- Accountability to clients is important. Clients should be part of the governance structure.
- A well-thought-out exit strategy should be in place before funding ends. Activities in the final year of implementation should focus on how to sustain the investment's positive outcomes.

Recommendations for practitioners

Extension can and should expand its role, given its significance for the larger AIS. The principles of extension-plus provide an opportunity for expanding the role of extension

by raising questions on the nature of extension's tasks, recognizing the need for new expertise, facilitating a review of extension's current interactions, and highlighting the importance of institutional changes. These tasks are important for developing and sustaining a capacity for innovation, which should be the main focus of investing in this kind of approach.

Before designing the program and operational strategy for investment, it would be better to undertake an institutional diagnosis to understand the range of organizations within the AIS, their expertise and activities, and their patterns of interaction. The scope of the specific extension investment and the priorities will vary in relation to the national, district, and local situations. For instance, forming groups of farmers could be the starting point in one

Table 3.8 Activities to Ensure Successful Operation of an Extension-Plus Approach

Phase or aspect of operation	Activity
Pre-project phase	<ul style="list-style-type: none"> – Conduct individual consultations, workshops, sample surveys – Identify key partners – Develop a shared vision for the program
Institutional and human development	<ul style="list-style-type: none"> – Recruit experts that can bring specific skills – Negotiate to get the right kind of staff on deputation – Identify and contract consultants (short and long term) – Conduct training, exposure visits, case analysis – Conduct an organizational and management review
Technical support	<ul style="list-style-type: none"> – Identify best technologies and refine or adapt them to local conditions – Direct recruitment – Make available on time the best and most efficient inputs, either by producing them directly or brokering arrangements with other suppliers – Recruit qualified technical staff and train them so that they remain up to date – If necessary, fund adaptive research
Credit and financial support	<ul style="list-style-type: none"> – Understand the financial/credit landscape – Negotiate with financing agencies – Guarantee transactions, set up revolving funds – Organize producers for group lending – Influence policies to help mainstream credit operations
Organizational development	<ul style="list-style-type: none"> – Form producer organizations (self-help groups, commodity interest groups, federation of self-help groups, producer companies, and similar groups) – Enhance skills through appropriate training programs (for example, skills in group dynamics or office management, including financial management)
Market development	<ul style="list-style-type: none"> – Analyze and strengthen market chain – Negotiate with different actors in the value chain – Create new markets if needed – Develop new products

Source: Author.

location, whereas linking farmers to new or emerging markets could be the priority in another. It would be ideal to source expertise and other inputs by forging links with other actors rather than trying to do everything through one program. If reliable sources of expertise and inputs do not exist, however, the program will have to start its own initiatives.

Specific activities that can ensure success at different stages and for different aspects of an extension-plus approach are listed in table 3.8.

Investment should focus on potential ways for strengthening and sustaining the capacity for innovation during the project period and after its end. Developing a new office (administration/financing) manual; making arrangements for monitoring, learning, and impact assessment; creating opportunities for communication and engagement with policy; and ensuring adequate funds for addressing evolving challenges are also critical for implementing this approach.

The Role of Innovation Brokers in Agricultural Innovation Systems

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SYNOPSIS

“Innovation brokers” are persons or organizations that, from a relatively impartial third-party position, purposefully catalyze innovation through bringing together actors and facilitating their interaction. Innovation brokering expands the role of agricultural extension from that of a one-to-one intermediary between research and farmers to that of an intermediary that creates and facilitates many-to-many relationships. As an organization and function, innovation brokering differs from traditional extension and R&D because it represents the institutionalization of the facilitation role, with a broad systemic, multiactor, innovation systems perspective. Preliminary lessons from experience are that innovation brokers help build synergy in agricultural innovation systems, but their “behind-the-scenes” mode of operating conceals their impact and may limit financial support for their role. Their contributions to building capacity for collective innovation and preventing innovation-system failures offer a rationale for public investment in their activities, but such investments must be accompanied by improved methods for measuring the impact of innovation brokering. As “honest brokers,” innovation brokers need considerable room to maneuver in building and facilitating networks from a credible position. Given that countries may have different cultures of collaboration and different stages of innovation system development (with corresponding system imperfections), a context-specific design is required for innovation brokers to attain a credible position.

WHAT IS THE RATIONALE FOR INVESTING IN INNOVATION BROKERS?

Over the past decades, the stakeholders in agricultural innovation have become more numerous and their interactions more complex (World Bank 2006). This increased

complexity has made cooperation for innovation less straightforward. To function, an AIS required shared visions, well-established links and information flows among the actors, and incentives that enhance cooperation (World Bank 2006). Interaction between stakeholders that are different enough to have new knowledge but related enough to understand each other seems particularly to lead to innovation—a relationship described aptly by Granovetter (1985) as “the strength of weak ties.”

Creating and fostering effective coalitions among actors is often hindered by incomplete information about what potential partners can offer, by different incentive systems for public and private actors, differences between indigenous and formal knowledge, social differences that cause exclusion of certain actors, or ideological differences (Pant and Hambly-Odame 2006). Innovation scholars (Burt 2004, Obstfeld 2005) emphasize the importance of having people who act as brokers in networks, connecting stakeholders that are not familiar to each other but may provide the “new combinations” essential to innovation. It is also recognized that a dedicated actor can fulfill this role of “innovation broker” (Smits and Kuhlmann 2004; Howells 2006).

Innovation brokers act as “systemic intermediaries” in innovation systems, forging many-to-many relationships. While the term “broker” has the connotation of a strategically acting go-between who benefits from the separation between actors and pursues objectives mainly out of self-interest, the concept of “innovation broker” derives from the notion of an “honest broker,” who brings people together mainly for altruistic purposes (Obstfeld 2005). The role of the honest broker resembles a broadened notion of the role of a process facilitator (Klerkx and Leeuwis 2009). In other words, innovation brokers are facilitators of interaction and cooperation in innovation systems, and their activities extend throughout innovation processes that last several years.

In the agricultural sector, innovation is vital for sustainable economic, social, and ecological development. Efforts to overcome the many barriers to effective communication, cooperation, and ultimately innovation are thus central to the public interest and justify public investments.

WHO CAN BROKER AND HOW?

Any advisory service or related individual or organization can broker, connecting farmers to different service providers and other actors in the agricultural food chain. Examples include research organizations such as those of the CGIAR, national and international NGOs, specialized consultancy firms, temporary projects, government programs, and farmers' organizations (see Klerkx, Hall, and Leeuwis 2009 for examples). Although public organizations such as extension services and research organizations could perform innovation brokering as part of their mandates (see TN 3), many retain a linear, transfer-of-technology

mindset and lack the capacity to fulfill this role (Rivera and Sulaiman V. 2009; Devaux et al. 2009). Innovation brokers can also be independent, specialized organizations with a skill set especially tailored to innovation brokering. A broad range of specialized innovation brokers has emerged, for example, in the Netherlands (Klerkx and Leeuwis 2009). Developing countries such as Kenya (boxes 3.23 and 3.24) and India (box 3.25) have done the same in recent years (Klerkx, Hall, and Leeuwis 2009).

Innovation brokering typically comprises the following functions, to be applied in a flexible and iterative manner (Klerkx and Leeuwis 2009; Kristjanson et al. 2009):

- **Analyzing the context and articulating demand.** The participatory assessment of problems and opportunities through quick system diagnosis identifies promising entry points (in terms of prospective markets), supportive policy, and constraining factors to be overcome. The analysis provides information to stipulate a shared vision

Box 3.23 The Need for Innovation Brokering: Supplying Potatoes for Processing in Kenya

In Kenya, DEEPA Industries Ltd. expanded its potato crisp production capacity from 2 to 12 tons a day, but its fully automated production line required a steady supply of high-quality potatoes. The International Potato Center (CIP) and the Kenya Agricultural Research Institute (KARI) organized and facilitated a meeting in 2005 to see if an arrangement could be brokered between the processor and potato producer groups in Bomet District. During the meeting, agreements were reached on a fixed price for farmers' produce, transport arrangements, and the regular supply of produce. The parties also agreed that the local public extension office would support the producer organization's efforts to supply the processor. No stable source of funds for continued brokering beyond this one-off meeting could be identified to continue supporting development of this emerging beneficial relationship between actors.

The transporter of the first shipment sold the high-quality potatoes destined for the processor elsewhere for a higher price and replaced them with potatoes of lower quality. The processor declined to accept further deliveries from the producers because they did not meet the quality requirements, with the result that a

constant supply of potatoes did not materialize. The processor had to scale down his ambition of exporting to other East African countries.

A structured and sustained innovation brokering effort could have made a big impact by building a working coalition between the different stakeholders in the innovation process. A more harmonized and effective contribution by research, extension, the private sector, and producers would have been possible through a clearly mandated broker.

Three years later, in the context of a development project funded by the Common Fund for Commodities (CFC), CIP and KARI renewed efforts to broker organizational innovation. Meetings are being organized to build trust and structure communication and economic interactions between the actors. Currently research, agricultural extension, producer groups, and DEEPA are innovating within the production chain by using high-quality, clean seed, contract farming, direct purchasing, local collection of the produce, and testing new genetic material for quality in crisp processing. These initiatives resemble types 1, 2, 3 in the typology of innovation brokering presented in table 3.9.

Sources: D. Borus and P. Gildemacher, CIP, Nairobi.

The Innovation Works Unit of the International Livestock Research Institute (ILRI) sought to facilitate pro-poor innovation related to livestock husbandry through efforts with a local as well as a systemic focus. The unit created several learning platforms for public and private stakeholders in particular projects. The platforms, which were mediated by local facilitators hired by the different projects, can be characterized as hybrids of an innovation consultant and a systemic intermediary (see the typology in table 3.9). The different projects funded innovation brokering through the platforms.

The platforms often took the form of safe havens—environments outside each of the participating organizations that provided a more neutral space conducive to creativity and co-creation, bypassing dominant groups committed to maintaining the status quo. A concrete example involved facilitation of the inclusion

of local pastoral Maasai communities as equal partners in drawing up a land-use master plan, in which local and scientific knowledge were combined. The Maasai gained a voice in the policy debate from which they had been excluded. A major achievement was that the facilitators tackled the huge power imbalances across their multipartner project team, such as the often unrecognized power of scientific experts. To build trust and demonstrate respect for the knowledge of all partners in the project, the facilitators pursued multiple strategies, such as hiring local community members as members of the core project research team and encouraging the joint creation of knowledge by a hybrid team of scientists and community members.

Despite these achievements, this kind of mediation often remains unrecognized and undervalued. It was difficult to make it a central function of an institute such as ILRI and get it funded.

Source: Kristjanson et al. 2009; see also www.ilri.org/innovationworks.

and articulate demands for technology, knowledge, funding, and other resources.

- **Composing networks.** Facilitate linkages among relevant actors—specifically, by scanning, scoping, filtering, and matchmaking possible partners that have complementary resources such as knowledge, technology, and funding. This also includes matching demand and supply in pluralistic advisory and research systems.
- **Facilitating interaction.** Action planning, along with the identification of and support to those taking leadership in multistakeholder activities, has the main objective of building functioning stakeholder coalitions. Considering the different backgrounds of the actors involved, coalition building requires continuous “translation” between actors, the building of trust, establishing working procedures, fostering learning, motivating, managing conflict, and intellectual property management.

Different types of innovation brokers have been observed, working at different levels of the innovation system and varying in their level of ambition and thematic scope. Table 3.9 presents a tentative typology based on the Dutch landscape of specialized innovation brokers (Klerkx and Leeuwis 2009). Although several of the types

described here can be found elsewhere, the typology is subject to further research and amendment (Klerkx, Hall, and Leeuwis 2009).

Innovation brokers have been found at the supranational (across several countries), national (country), regional (province, district), and (sub)sectoral or commodity level (such as dairy or horticulture), but these levels may also mix (for example, when dealing with cross-cutting value chain innovations). With respect to their level of ambition, some innovation brokers focus mostly on incremental innovations at the farm level, in a demand-driven and bottom-up fashion. They may be reactive, responding to clients’ ideas, or they can more pro-actively approach prospective clients and offer a context analysis and demand articulation session (Klerkx and Leeuwis 2008). Other innovation brokers typically focus on radical innovations that comprise complete (sub)sectors or value chains, dealing with complex problems that require a systemwide change process. In this case, innovation brokers are often proactive initiators of processes and act as change agents. With respect to thematic scope, some innovation brokers focus on one sector (dairy alone, for example), whereas others address all kinds of sectors within a region, and still others focus exclusively on a specific activity (rural tourism, for example). The optimal

Several types of innovation brokers have emerged in India. They have taken different organizational forms, they operate at different levels in the innovation system, and their scope of innovation differs.

International Development Enterprises. In India and Bangladesh, an international NGO, International Development Enterprises (IDE), acted as a broker in the process of developing innovations for low-cost irrigation pumps. (In Bangladesh, aside from coordinating interaction among actors in the irrigation pump supply chain, IDE also coordinated interaction with policy makers.) Because of IDE's intervention, the focus broadened from developing a particular technology to realizing the vision of effective irrigation water provision for the poor. Institutional innovations were the key to realizing that vision and included changing the incentives for public and private actors and creating effective demand for the technology so that a self-sustaining market could emerge. IDE acted as a local innovation consultant as well as an instrument for systemic innovation.

Using ICT and social media to build awareness of innovations and other information. To truly benefit from farmers' creativity and experimentation, several

initiatives use ICT and social media to identify and build awareness of little-known innovations. Participants can share experiences and scale up successful efforts. These initiatives are hybrids of an innovation consultant, a peer network broker, and a ICT-based platform that helps to articulate demands and build networks. Examples include the HoneyBee Network and Villagro Network, which scout for innovations for their databases and connect innovators to supporting agencies such as India's National Innovation Foundation. The networks also help participants to patent innovations and find investors to develop products. Sustainable inventions from the Honey Bee database comprise 34 categories, including agricultural tools and techniques, water conservation, health, education innovation, food and nutrition, traditional medicine, and industrial and household goods. (Example of specific innovations include a motorcycle-driven plow for farmers who cannot afford tractors or bullocks and matchsticks made of natural fibers sourced from agricultural waste.) Still other efforts use ICT-based brokering instruments ("infomediaries") to share operational (market and production) information (rather than strategic information) for innovation.

Sources: Authors; Gupta et al. 2003; Hall, Clark, and Naik 2007; Murthy 2010; see also www.ideorg.org, www.honeybee.org, and www.villagro.org.

innovation system level, ambition level, and thematic scope of the work can be determined only in the course of the interaction between innovation brokers and their clients. This uncertainty implies that sometimes clients will need to be referred to another type of innovation broker than the one they originally started to work with. In other instances, several complementary innovation brokers are involved within a single innovation process (Klerkx, Aarts, and Leeuwis 2010, Devaux et al. 2010).

WHAT ARE THE POTENTIAL BENEFITS OF INVOLVING AND INVESTING IN INNOVATION BROKERS?

The current imperfect interaction between the actors essential for agricultural innovation—farmers and their organizations, researchers, extension, agricultural service providers, local government, agribusiness—is often not a

result of unwillingness to interact but of a lack of capacities, structures, and incentives to interact effectively. Through investments in innovation brokering, communication between the multiple actors can improve greatly. By providing fresh insights and a mirror for self-reflection, innovation brokers stimulate clients to look beyond their current situation and constraints. For example, farmers and other agrifood stakeholders can think about new possibilities to improve their businesses, or producer organizations, researchers, and extension service providers can think about innovative manners of communicating. Impartial, honest brokers, because of their less-biased position and the overview of the system that they can provide, can forge contacts between parties that would normally not cooperate. They can also mediate more easily in the case of conflict (see the first point in the section, "What Key Issues Should Be Considered?," later in this TN). Hence they can assist in promoting more perfect information.

Table 3.9 Typology of Innovation Brokers

Type of broker*	Focus
1. Innovation consultants, aimed at individual farmers and small and medium enterprises (SMEs) in the agrifood sector	Connect farmers/agrifood SMEs with relevant collaborators and service providers and also with sources of funding and policy information. Generally incremental innovation; short time horizons.
2. Innovation consultants aimed at collectives of farmers and agrifood SMEs	Similar to type 1. The main difference is that they work with collectives, first connecting farmers or agrifood SMEs with similar interests and then connecting these actors with relevant collaborators, service providers, and sources of funding and policy information. Generally incremental innovation; short time horizons.
3. Peer network brokers	Aim to bring farmers together to exchange knowledge and experience at the interpersonal and group level—in other words, to facilitate enterprise development through peer-to-peer learning resembling concepts such as Farmer Field Schools. An explicit objective is to involve actors from weak networks (surpassing regional and sectoral networks) by inviting entrepreneurs from other regions or sectors and subject matter specialists.
4. Systemic intermediaries for the support of innovation at higher system level	Catalyze radical systemwide innovation (such as an entire production chain, societal systems, or policy systems) by: (1) managing interfaces between (sub)systems in the innovation system; (2) building and organizing (innovation) systems; (3) stimulating strategy and vision development; (4) providing an infrastructure for strategic intelligence; and (5) providing a platform for learning and experimenting. Involve several societal actors, including farmers, supply and processing industry, civic advocacy organization, and policy makers, for example. Generally radical/system innovation and transition trajectories; medium to long time horizons.
5. Internet-based portals, platforms, and databases that disclose relevant knowledge and information	Portals and platforms differ with regard to their prospective audiences, which may be selective (such as farmers), all agrichain actors, or project-related audiences. Portals and platforms may have a rather passive matchmaking role. Some portals create order in a wealth of information sources and give an overview but do not serve as a selection aid. Interactive tools exist, however, to allow the provision of services adapted to users' needs. Addressing both operational or tactical problems and strategic innovation issues; short time horizons.
6. Research councils with innovation agency	Management of multiactor R&D planning networks (involving farmers, supply and processing industry, civic advocacy organization, policy makers)—e.g., facilitating a demand-driven research agenda and priority setting. Facilitation of participatory/collaborative R&D (involving end-user participation), also addressing the creation of an enabling environment for enhancing research result uptake. Incremental and radical innovations; short to medium time horizons.
7. Education brokers	Aimed at curricular innovation. Provide educational establishments with the latest insights from practice and research to enhance the fit of their education programs with business and societal needs.

Source: Adapted from Klerkx and Leeuwis 2009.

* Hybrids of different types of innovation brokers are possible within a single organization, as well as involvement of different types of innovation brokers within a project.

Broadly, innovation brokering can be expected to have immediate and long-term results. Direct results are expected through market innovations that arise when producers respond better to the needs of agribusiness and agribusiness operators develop a better understanding of production systems, as in the case of potatoes for the snack food industries in Kenya and Peru (box 3.23 and the description of Papa Andina in module 1, TN2). Brokering can facilitate technical innovation by improving how agricultural research service providers target serious bottlenecks in production or processing or by inducing required institutional change on the part of policy makers and legislators. Over the longer term, and beyond the immediate results of a single innovation brokering effort, brokering should improve how the overall innovation system functions. Once contacts have been made and working coalitions have

formed between stakeholders, the result should be more market-oriented research and advisory services, more effective agricultural value chains, and a more conducive policy environment—in other words, a better-functioning innovation system (Klerkx and Leeuwis 2008; Klerkx, Aarts, and Leeuwis 2010; see also box 3.24).

WHAT ARE THE MAIN INVESTMENTS NEEDED FOR INNOVATION BROKERING?

The main investments to mainstream the use of innovation brokers to support agricultural development are:

- **Improving the recognition and evidence that innovation brokering is useful.** Funding the innovation broker role is problematic. Even when organizations involved

in agricultural development see this role as central to their core missions, they lack the opportunity and freedom to execute the innovation broker role within their mandate (Kristjanson et al. 2009). To widen awareness of brokers' potential role in innovation and show that an investment in their role is justified, more structured documentation of successes and failures (specifically in developing countries) is required, followed by the publication and promotion of the outcomes.

- **Improving the understanding of how to implement innovation brokering effectively as a tool for development.** Implementers should take care to not simply copy innovation brokering models from one context to the other, as best-fit solutions should be sought (Berdegué and Escobar 2002). Different approaches are needed depending on asset positions, favorable or unfavorable production environments, gender issues, and power distribution (Kristjanson et al. 2009). To increase the understanding of effective approaches of innovation brokering, action-learning cases need to be initiated and documented in different countries and agricultural systems.
- **Improving human capacity to play the role of innovation broker.** First and foremost, innovation brokering requires skills related to process facilitation: leadership, multistakeholder facilitation, trust building, and communication; it also requires tools for managing group processes (Anandajayasekeram, Puskur, and Zerfu 2010). A system overview is required to permit stakeholders to understand and “translate” between each other. This skill set cannot be obtained through formal education alone but must be developed through a combination of formal education and practical experience. Investments are required to develop capable facilitators of innovation within organizations motivated to support agricultural innovation through brokering. A critical mass of experts and organizations in this field is still lacking, as reflected by the experience with NAADS in Uganda (Kibwika, Wals, and Nassuna-Musoke 2009) and the reorganization of agricultural service provision in Mozambique (Gêmo 2006). Traditional research and extension organizations must “retool” if they are to develop their innovation brokering capacity and abandon a mere transfer-of-technology paradigm (Devaux et al. 2009). The implication is that they must develop a service delivery philosophy and a mindset that recognizes multidisciplinary (including topics such as agricultural economics, sociology, and gender issues), as well as facilitation skills. Capacity-building

interventions should be local and context-specific and aim to build durable and, ideally, self-sustaining systems of continuous capacity improvement.

WHAT KEY ISSUES SHOULD BE CONSIDERED IN POLICIES TO ESTABLISH INNOVATION BROKERS?

A number of criteria determine whether an organization can play a role in brokering between actors in an AIS (Klerkx, Hall, and Leeuwis 2009). The most important are:

- **A legitimate mandate and credibility in the eyes of system stakeholders.** A key factor for the legitimacy of innovation brokers is that they must have a trusted position as a relatively neutral “honest broker.” They should have a reputation that instills a degree of independence from the major stakeholders in the process and the overall innovation system. This stance is not easy to maintain, because stakeholders may exert pressure to compose and facilitate networks in a way that fits their particular objectives. An apparent connection to an organization may negatively influence credibility as a neutral, honest broker, which seems to indicate that innovation brokers might work best as independent, specialized organizations. Innovation often challenges prevailing role divisions, power relations, and profit distribution. To build productive innovation networks, sometimes parties with vested interests need to be bypassed.
- **Both technical and methodological know-how and a clear role division.** Innovation brokers should have sufficient technical knowledge but should not become so involved with projects that they take over detailed management and take away ownership from the innovation network partners. They should also give equal attention to the goals and interests of each of the partners.
- **Funding sustainability.** A durable source of funding is an important requirement for effective innovation brokering. Often funding is on an ad hoc, project basis, and especially in times of fiscal austerity innovation brokering services are often discontinued, despite high client satisfaction (Klerkx and Leeuwis 2008). Because the impact of innovation brokers is difficult to make visible, durable public, donor, or private stakeholder funding is hard to obtain (box 3.24). Ways need to be found to assess the impact of innovation brokers and better justify public or donor spending, starting with detailed documentation of specific cases.

LESSONS LEARNED

Well-documented experiences with innovation brokering are limited, but there appears to be a growing recognition of professionals in research, extension, and advocacy who may have the skill set and honest broker status that we are looking for in innovation brokers. The development of innovation brokering services requires continued local experimentation, adaptation, and learning (Klerkx, Hall, and Leeuwis 2009). So far several general lessons have been learned, discussed below.

Context analysis is needed prior to or as part of the innovation broker establishment

It is essential to adequately map and diagnose the strengths and weaknesses of the relevant innovation system (see Gildemacher et al. 2009) to get a clear view on missing linkages and/or deficient interaction. In doing so, it should also become clear whether some parties already fulfill an innovation brokering role and the extent to which they may complement or overlap with the envisioned task of the proposed innovation broker. Such a preparatory phase of context mapping and consultative talks with stakeholders prior to innovation broker establishment may take between one and two years.

Some innovation brokering functions are generic

To bring structure into the process of innovation brokering, several generic steps in the process can be distinguished: (1) context analysis; (2) initial network composition; (3) participatory needs and opportunity assessment, including network recomposition when necessary; (4) action planning; (5) network facilitation/coordination, problem solving, and conflict resolution; and (6) exit strategy. As progress in innovation processes is rather unpredictable, no fixed time allocations can be given for these phases.

Innovation brokers can use existing tools, methods, and approaches, but innovation brokering is learning while trying

Attention for integrated innovation brokering in agricultural development is new. The capacity to play the role of innovation broker cannot be fully obtained through formal training. However, many practitioners will recognize the role of innovation broker as a role they have played or seen being played. Although innovation brokering is thus not yet a very well-articulated and recognized role, tools from other

approaches are available, such as the facilitation of multi-stakeholder interaction and value chain development. Innovation brokers can benefit from using such methods, to avoid “reinventing the wheel.”

The role of AIS theory should be appropriately modest

The real proof of concept is in practice. It is important for practitioners to keep in mind that it is the experience in practice that steers the development of theory. Considering that innovation brokering has been recognized only recently as an important and deliberate function in AIS, practitioners are often pioneers. This situation implies that they should make decisions based on their own understanding, experience, and judgment rather than search for answers from AIS theory. While trial-and-error learning may incur some inefficiencies in regard to effective spending of funds (Klerkx and Leeuwis 2008), experimentation appears to be needed to create locally adapted innovation brokers, as there is no one-size-fits-all model (Klerkx, Hall, and Leeuwis 2009).

Perfect innovation brokers do not exist

When listing the skills and attitudes required in a good innovation broker, an apparently endless list of required qualities will emerge. These qualities are impossible to find combined in a single person. Still, the role of innovation broker will depend on these imperfect individuals. Each individual will have to develop a personal style as a broker that fits his or her strengths and weaknesses.

A structured exchange of experiences supports capacity building

As this field is new and capacity building is needed, peers involved in innovation brokering need to invest time and effort in exchanging experiences. As a reference point, the Netherlands took about fifteen years to develop a diverse field of innovation brokers and recognize their role (Klerkx and Leeuwis 2009). A structure of peer-to-peer exchange and support will directly improve performance as well as help to build capacity.

Innovation brokers should negotiate and defend the freedom to explore options

Once established, an innovation broker should be given considerable freedom to explore new options and establish

new linkages. Brokers should not be tied to prescribed input-output schemes by either their employers or funders.

Monitoring and evaluation are needed for learning

Innovation is by definition an unsure process. It involves invention, adaptation, and changing directions as a response to the insights that are gained. It is difficult, even detrimental, to monitor progress through rigid and SMART milestones (Klerkx and Leeuwis 2008). Methods of M&E that focus on learning lessons are more suitable. Alternative M&E indicators should be identified by the stakeholders involved as relevant proof of progress, but (more important) these indicators should also serve as points of reference for learning to improve the process of innovation.

Recognize the difficulty of distinguishing and attributing outcomes

The primary work of innovation brokers is to improve the quality of interactions, which is a process that includes many intangible contributions. Innovation brokers will have to deal with the dilemma that they should sufficiently emphasize the impact of their role but not take all the credit (which may annoy stakeholders and diminish their ownership). While attribution is already a perennial challenge for extension programs, it is possibly even more problematic for innovation brokers, given their “behind-the-scenes” mode of operating. Because it is hard to distinguish and attribute the impacts of innovation brokering, it is also difficult to make the innovation broker role self-sufficient; willingness-to-pay is typically low among private actors. Long-term public investments appear to be needed in view of persistent innovation system failures such as fragmentation and lack of coordination. A focus on short-term funding may engender a vicious circle of short-term funding, leading to the disappearance of the innovation broker and renewed funding of a similar innovation broker.

Short-term results and long-term outcomes

It is important to keep in mind the two levels of results, direct and indirect, of innovation brokering. Direct and concrete activities and results are needed to keep the innovation coalition together long enough to build trust and build relationships. Without direct and concrete results and activities, it is impossible to keep actors motivated to invest in interaction and collaboration. Direct innovation results are also needed to justify investments in coalition building

and brokering. The biggest potential for impact is, however, through the long-term outcome of improved collaboration between actors, transforming the innovation system in such a way that it becomes responsive and contributes to a durably competitive agriculture sector.

RECOMMENDATIONS FOR PRACTITIONERS, POLICY MAKERS, AND PROJECT LEADERS

From the lessons learned so far, several recommendations can be distilled for brokers themselves, policy makers, project leaders, and those who champion innovation brokering.

Recommendations for prospective innovation brokers

- ***The problems and challenges that need to be tackled by innovation brokers may be different.*** Although not exclusive to developing and emerging countries, but maybe even more severe and pressing in light of rural poverty and natural resource scarcity and degradation, problems that need to be addressed include: dealing with competing claims on natural resources, inclusion of the poor and giving them a voice in the development process, and equitably integrating smallholder farmers in global value chains. For this reason, different approaches are needed in designing the brokering role. Prior to setting up an innovation broker (which may be an individual, a unit in an existing organization, or a new organization) in a region or sector, start with an analysis of innovation system imperfections, and assess the need for an innovation broker and willingness of stakeholders to support and/or work with a broker. Gain the confidence of stakeholders, and work to gain credibility as an honest broker in the innovation system.
- ***Plan for the nature of the different innovation broker functions*** (particularly context analysis, demand articulation, and initial composing of networks as first steps) in the different steps of the innovation process. Do not apply them as a blueprint, however. Be flexible at the same time. Assist in reassessing the context, needs, and opportunities when needed, and help networks to adjust accordingly. The facilitation of interaction is a dynamic activity, given that changing visions and networks require constant attention to mutual understanding and trust.
- ***The nature and intensity of the innovation broker’s role will most likely change over time.*** It should shift gradually from actively taking the initiative to handing over the

initiative and daily project management to project participants and acting in the more distant role of project monitor.

- ***A broker will have to deal with multiple accountabilities and conflicts of interest in the innovation process.*** Conflict management and intermediation skills are important. Brokers must prepare to deal with contrasting demands and the opposition of incumbent actors in the innovation systems who do not favor change. As an innovation broker, try to be as transparent as possible about the “what” and “why” of certain actions or interventions, to avoid giving false impressions. Perception management is essential. In some countries with weak governance, additional challenges need to be dealt with, such as corruption and favoritism. Due to resource dependencies an innovation broker may nevertheless become a more or less “hidden messenger” for government or another party—a perception that may be detrimental to the broker’s impartiality, credibility, and hence longevity.
- ***Take care in assigning credit for results.*** As the innovation process evolves and results materialize, the innovation project partners, other actors in the innovation system, and funding agencies should be made aware of the broker’s contribution in achieving these results. Brokers themselves should avoid taking credit from project participants.
- ***Expect the greatest reward and sign of accomplishment to be that an innovation broker may no longer be required when local innovation capacity has been built.*** The broker should withdraw rather than force his or her presence between actors. Brokers should think about an exit strategy from the beginning.

Recommendations for policy makers in government, research organizations, and other organizations

- ***Before establishing an innovation broker, assess innovation system failures and current innovation broker capacity to avoid duplication of effort.*** Remember that in some cases the need for context specificity may justify the coexistence of several innovation brokers. It is essential to stimulate interaction between different innovation brokers to demarcate mandates and complementarities. In the absence of coordination, overlap and even competition between innovation brokers can arise, engendering confusion among clients about who is facilitating what and reducing the synergies that innovation brokers should induce in innovation systems.

- ***When establishing innovation brokers, avoid maintaining an overly close organizational and ideological connection with the respective policy domain.*** Distance will enable the innovation broker to develop a clean, “honest broker” image and sufficient operational maneuvering space. Do not try to use innovation brokers as messengers to bring about government interventions. Sometimes radical innovation goes against current government policy.
- ***Accept that innovation brokers, by counteracting imperfections in the innovation system, also change the innovation system’s configurations and interaction patterns.*** Although such actions may challenge certain policy lines, policy makers who champion the role of honest brokers should accept this situation and defend it with their constituencies and peers in the policy domain.
- ***Allow sufficient freedom*** to forge unexpected linkages (for example, to connect agriculture with the gaming industry) and experiment (touching themes that at first sight do not have anything to do with current ways of agricultural production), but agree upon certain deliverables. Such deliverables could include the number of new concepts developed or the number of productive innovation networks forged, supported by narrative case reports of innovation dynamics. A supervisory board drawn from the different domains with which the innovation broker works should be installed to monitor the extent to which these deliverables have been realized. The board members are ideally well and widely respected but at the same time visionary and open to change.
- ***As in the case of market failure, innovation system failure justifies public investment,*** even though innovation is unpredictable and difficult to plan. Investment in innovation typically is of a “best bet” nature, and stimulating innovation means that investments are made in projects with an unknown and sometimes unviable outcome. Despite innovation brokering, failure may occur, but this does not mean that innovation brokering does not merit investment.
- ***Stimulate the development of M&E indicators that capture the rather intangible activities of innovation brokers,*** particularly indicators that move beyond case documentation and satisfy the need for quantitative justification of investment. Methods and indicators are especially needed to capture causal relationships between innovation network performance and the activities of innovation broker activities as well as the spillover effects of innovation brokers in innovation systems. Methodologies such as social network analysis may be promising

in this regard (see Spielman, Ekboir, and Davis 2009). Stimulate policy learning and institutional memory in relation to the roles and effects of innovation brokers to avoid a vicious circle in which innovation brokers appear, only to disappear and reappear.

- ***Creating innovation brokering capacity within an existing organization, such as an extension or research organization, requires the proper institutional conditions to be shaped.*** Innovation brokering cannot be judged on the basis of traditional performance criteria for research and extension, such as publications or numbers of field visits. Furthermore, management and staff need to gain an understanding of the role of innovation brokering so that it is not seen as extrinsic to the organization's core mission.
- ***Brokering is influenced by the nature of the AIS and institutional frameworks as well as cultures of collaboration.*** Many countries are characterized by "immature" innovation systems that lack a functioning knowledge infrastructure (research, education, advisory services) and by inadequate institutional frameworks (in terms of well-functioning legislation, markets, and interaction patterns). Policy makers should keep in mind that different cultures of collaboration may affect the potential effectiveness of innovation brokers (for example, in building trust, achieving a collective goal) because of the cultural organization of interaction among actors at different social and economic positions and issues like clientelism, social exclusion, nepotism, and corruption.

Recommendations for project leaders, project implementers, and/or innovation champions

- ***Prepare to give up preconceived ideas.*** Stimulating critical and creative "out-of-the box" thinking is a key role of innovation brokers.

- ***Establish a clear division of tasks*** in innovation process management, to avoid overlap and a lack of project ownership. Depending on the innovation network's internal capacity to manage innovation processes, the intensity of the broker's involvement may vary. Generally, daily project management is a principal task of project leaders/ implementers and/or innovation champions, while issues like process monitoring and conflict mitigation are a principal task of innovation brokers. The involvement of innovation brokers implies that reflection on project progress, the role of different partners, the viability of the vision, and objectives becomes an integral part of the project.
- ***Coordinate actions of the innovation network partners and the innovation broker when forming the network,*** to avoid confusion among the parties approached as to whom they should regard as their main contact person.
- ***Recognize that the innovation broker cannot always take a clear stand in advocating the interests of the innovation project versus external parties,*** although the broker is regarded as part of the innovation network. Advocacy is needed to some extent, but within certain limits. Innovation brokers that become too institutionalized in the project may benefit from having another innovation broker give a "second opinion."
- ***Although innovation brokers are often subsidized, if a private contribution is requested, realize that this investment is generally compensated by a lower failure rate and better access to external resources.*** In general, integrate the cost of innovation brokering in the overall project sum, and do not see it as an unnecessary investment lowering the research budget.
- ***Accept that innovation brokers cannot perform miracles.*** Some obstacles may be of such magnitude that they require prolonged action by innovation brokers (for example, through mediation) but nonetheless cannot be overcome.

Agrodealer Development in Developing and Emerging Markets

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SYNOPSIS

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. The benefits of agrodealer development accrue at various levels in the value chain and reach stakeholders at the micro and macro level. Developing agrodealers' technical capacity allows them to provide high-quality advisory services to farmers, accelerates the introduction of technology, and enhances the potential economic returns for farmers who invest in yield-improving technologies. Developing their business acumen is paramount for improving dealers' operations, cost-effectiveness, and potential for long-term economic success in serving farmers. Developing business linkages is critical in enabling agrodealers to capitalize on opportunities to improve the cost and operational efficiency of value chain and credit management and to expand the scope of their operations. It is vital to tailor each agrodealer development intervention to the specific conditions and market characteristics of a given country and region. Agrodealers learn best either through direct, one-on-one assistance or through group participation with hands-on interaction. Longer-term interventions are more effective than short ones (program continuity allows for timely interaction with policy makers and donors). Broad-based stakeholder involvement and attention to cost sharing (when feasible) are essential to sustaining progress.

CONTEXT

Agrodealers play a crucial role in servicing farmers' needs related to agricultural inputs.¹ Ideally that role includes providing farmers with (1) affordable, convenient access to appropriate, high-quality technologies to enhance yields and (2) proper advisory services on the best way to use those

technologies to achieve favorable economic returns. The functions performed by agrodealers in developing and emerging markets are substantially influenced by the stage of agricultural development and the prevailing macro environment (for example, the government's role in agricultural input markets, the availability of finance to buy inputs, and so on).²

In an early phase of development, agriculture is mostly extensive; the sector is characterized by weak, seriously underdeveloped agricultural input and output markets. The public sector typically dominates the supply of agricultural inputs to farmers. In almost all cases, public systems that perform the function of agrodealers focus on logistics management with little (if any) emphasis on stimulating demand (through farmer advisory services or technology promotion campaigns, for example). Public systems rely strongly on the agriculture ministry and public extension service to create awareness and educate farmers. In the early phase of market development, private agrodealers' role usually is limited to bridging the gap between suppliers of agricultural inputs and farmers, often in competition with the public sector. Private agrodealers perform the essential basic functions of determining the product mix, physical distribution, pricing, and sales.

In markets where agriculture is more developed, as in India and Pakistan, agrodealers may assume more complex roles. In addition to providing convenient and timely access to appropriate, high-quality products, they may provide farmers with advisory services, participate in campaigns to introduce new technologies, and provide sales on credit to their best farmer customers. In more advanced markets, agrodealers may serve as an important source of information that is useful from both a commercial and policy perspective.

As the final link in the agricultural input value chain,³ those entities (public and private) that function as agrodealers are able both to influence farmers' demand for

yield-improving technologies and to improve the transfer of knowledge related to the proper, safe use of agricultural inputs. They have a major influence on farmers' incomes. Efforts to improve food security and accelerate income growth in rural areas can be significantly affected by the presence and effectiveness of agrodealers.

INNOVATIVE ELEMENT

The International Fertilizer Development Center (IFDC) takes a holistic, market-oriented approach to agrodealer development, whether the challenge is to improve efficiency in public systems or strengthen the capacity of private agrodealers (box 3.26). Improving the performance of the members of the value chain, thereby achieving operational and cost efficiencies that directly benefit farmers, is a priority. The IFDC approach to agrodealer development incorporates the marketing concept—*an agrodealer's long-term success can best be achieved through better serving its farmer customers*—in all activities directed at capacity building and promotion.

FOCAL AREAS AND INTERVENTIONS

Focal areas in agrodealer development comprise technical knowledge transfer, business acumen development, business

Box 3.26 Philosophy on Agricultural Development Drives the Approach in Agrodealer Development

The philosophy on agricultural development at IFDC encompasses two premises:

- Improved use of agricultural inputs (such as fertilizer, high-quality seed, or crop protection products) is essential, along with good water management, to sustainable improvement in agricultural productivity per unit of land.
- Efficiency in resource use can be maximized by employing a market-oriented approach to development.

The IFDC goal in agrodealer development is to foster the development of agrodealers so that they may effectively serve farmers' immediate and long-term agricultural input needs.

Source: Thompson 2003, 2005.

linkage development, and efforts to strengthen the support systems needed for agrodealers to become successful in a competitive marketplace. The following focal areas are a priority for IFDC in the design and implementation of activities to accelerate agrodealer development.

Technical knowledge transfer

Strengthening the technical capacity of agrodealers allows them to provide high-quality advisory services to farmers, accelerates the introduction of technology, and enhances the potential economic returns for farmers who invest in yield-improving technologies. Efforts to improve dealers' knowledge and understanding of agricultural input products focus on analyzing problems in soil and crop health management and on the field performance of products (for example, in maintaining soil and plant health); their safe use, storage, and handling to minimize human and environmental damage; and proper application to achieve maximum efficiency from use and optimum economic returns. Two crucial steps in increasing farmers' demand for agricultural inputs are to create awareness and transfer knowledge related to yield-enhancing technologies. Particularly in developing countries, the "seeing is believing" concept is highly effective in educating agrodealers and farmers and stimulating farm-level demand for inputs. Some of the most effective approaches for promoting agricultural inputs include the design and implementation of collaborative technology demonstration plots as well as technology field days and crop cuttings. IFDC also provides agrodealers with point-of-purchase technical leaflets, wall hangings, and poster boards that build farmers' awareness and knowledge of agricultural input use (box 3.27).

Development of business acumen

Strengthening the business acumen of agrodealers is paramount for improving dealers' operations, cost-effectiveness, and potential for long-term economic success in serving farmers. Agrodealer development activities of IFDC, CNFA, and others emphasize improving dealers' understanding of the financial, marketing, and management functions that must be performed well for a business to survive and grow. Training sessions cover the basics of marketing and business management; strategic planning to ensure that sufficient inputs are supplied in a timely manner to farmers; record-keeping to support profitability analysis, business planning, and credit management; understanding the total cost

Box 3.27 Technical Knowledge Transfer: A Public-Private Approach in Bangladesh

In Bangladesh, IFDC conducts a range of technical knowledge transfer activities, engaging both the public sector (such as the Department of Agricultural Extension, DAE) and private fertilizer dealers. Providing education to DAE field staff improves their awareness of appropriate agricultural technologies, the best practices for using them, and the resulting benefits through a “train-the-trainer” approach to knowledge transfer. Building the capacity of dealers to provide advisory services to farmers is a well-accepted practice. Various knowledge transfer activities are used and target agrodealers as well as DAE staff, including classroom training sessions that last one to three days, collaborative field demonstrations/field days, and direct, one-on-one technical support through site visits.

When a new technology is introduced, rapid penetration promotion campaigns are effective. Specific tools to introduce the targeted technology include technical leaflets, signboards, point of purchase displays, billboards in heavily populated areas, and open sky shows.

Source: IFDC 2011.

incurred in the agrodealer business and the associated record-keeping needs for marketing and accounting; price determination and pricing strategies; the design and implementation of promotional campaigns to improve sales; procurement planning and negotiation; credit management; and extending agrodealer networks to improve geographic coverage. IFDC’s experience is that short group training sessions with a blend of lectures, group exercises, and case studies are highly effective in building business acumen.

Business linkage development

Business linkage development is critical in enabling agrodealers to capitalize on opportunities to improve the cost and operational efficiency of value chain and credit management and to expand the scope of their operations. Strengthening linkages within the agricultural input value chain generates several advantages. It allows for efficiencies in logistics planning and inventory management, improves

awareness of new technologies, offers opportunities to realize economy-of-scale benefits through joint procurement, improves access to credit through banks and supplier credits, and facilitates the expansion of dealer networks. IFDC fosters business linkage development through workshops, direct technical assistance, publication of monthly market news bulletins, study tours, training programs, and the development of alliance agreements (box 3.28).

Strengthening support systems

Advantages in market development are afforded by forming groups in a manner that does not impede competition. Market efficiency requires a relatively high degree of market transparency at all levels; market information is essential to successful planning and decision-making. Various support systems facilitate agrodealer development. IFDC often works to create agrodealer associations and build their capacity to provide dealer education programs, advance technology introduction, provide policy advocacy, facilitate business linkage development, improve access to commercial finance, and enhance market transparency (box 3.29). The emphasis is on creating agrodealer associations that provide a formal structure to support long-term dealer interests.

It is important to tailor each agrodealer development intervention to the specific conditions and market characteristics of a given country and region. Human capacity building is emphasized in all activities. Educational programs and the provision of resource materials are crucial. One or more combinations of the following may be included: formal (classroom-type) training programs tailored to a particular audience on specific subject matter;⁴ development/dissemination of an agrodealers’ handbook; informal, one-on-one site visits with agrodealers to provide guidance on business management, product display, product storage, and safe input use and handling practices; and regional and international study tours to observe agrodealers and technology suppliers in more advanced markets. Cost-sharing (for technology demonstrations and field days, for instance) is emphasized. As an example of the type of resource material provided to agrodealers, an agrodealer handbook was developed in Uganda and Bangladesh to serve as a ready reference for agrodealers.

The scope of interventions may range from a one-time event such as a two-day training program to a more extensive, multiyear, comprehensive market development effort that includes agrodealer development. It is important to be aware of the peak agricultural input use season and avoid scheduling programs at those times.

Box 3.28 Business Linkage Development and Leveraging Resources

Global Development Alliance. In collaboration with the United States Agency for International Development and the Eurasia Group (Pioneer, John Deere, DuPont, and Monsanto), IFDC helped to create a Global Development Alliance in Kyrgyzstan. The alliance has been instrumental in introducing technology and building human capacity through cost-sharing and in linking Kyrgyzstan's agrodealers to suppliers of improved technologies.

Linking South Asian and African entrepreneurs. IFDC is organizing study visits and technical workshops to link suppliers of fertilizer briquette machines in Bangladesh and agrodealers in Kenya, Nigeria, and Rwanda. The emphasis is on creating awareness and establishing business contacts among agrodealers, entities that directly impact their businesses (including banks and microfinance institutions), and agricultural input distributors/wholesalers with local, national, regional, and international markets.

Sources: IFDC, unpublished project documents, 2009 and 2010.

Box 3.29 Agrodealer Associations Support Common Interests

The role and benefits of agrodealer associations are reflected in improvements in four key areas: access to finance, advocacy, communication, and education. IFDC implemented the Fertilizer Distribution Improvement (FDI) II project in Bangladesh during 1987–94 with funding from the United States Agency for International Development. With FDI II project support, the Bangladesh Fertilizer Association (BFA) was established in June 1994. A decade and a half later, the BFA is a 7,000-member-strong association that provides varied services to its members, including policy advocacy, knowledge transfer, and improved market transparency.

It is important to avoid dependency on donor funds for association operations. Long-term survival requires the association to create a revenue flow that comes substantially from membership dues.

Source: USAID 1996.

BENEFITS AND IMPACT

A holistic, market-oriented approach to agrodealer development facilitates improved efficiency in resource allocation, operations, and economic performance. The benefits of agrodealer development accrue at various levels in the value chain and impact stakeholders at the micro and macro levels. For instance, beginning in 2008, the Government of Bangladesh endorsed fertilizer deep placement as a technology that would help to improve rice production systems substantially, thereby contributing to food security and farmers' incomes. IFDC, with support from USAID and the Government of Bangladesh, designed and introduced a program to diffuse the technology and concurrently address demand and supply issues. The role of agrodealers in Bangladesh continues to evolve and is having a substantial impact on food security, farmers' incomes, and the national budget (box 3.30).

LESSONS LEARNED

IFDC's long experience in working with agrodealers in emerging markets throughout the world can help practitioners plan or support similar activities. Key lessons are summarized below.

- **Understand the challenge.** The agrodealer market environment and challenges faced by farmers differ from country to country. A *key lesson* is that a "one-approach-serves-all" philosophy does not work. Each intervention must be tailored to the prevailing conditions in the target area. Achieving success in agrodealer development requires a clear understanding of the overall agricultural input marketing system, the stage of development, and the influence of macroenvironmental factors at a given time.
- **Engage the public agricultural extension service to the maximum extent feasible and use its extensive networks to provide knowledge-building services to farmers.** A *key lesson* is that the extension service, other public officials, and private agrodealers must provide farmers with a consistent, clear message on the need for and appropriate and safe use of agricultural inputs.
- **Keep learning practical and interactive.** A *key lesson* is that agrodealers learn best either through direct, one-on-one assistance or through group participation with hands-on interaction. Study tours in more advanced markets often are beneficial to build business linkages and to further awareness and knowledge of technologies and the advisory role of agrodealers.

Box 3.30 Diffusion of Fertilizer Deep Placement Technology in Bangladesh

In close collaboration with the Department of Agricultural Extension (DAE) and private dealers in Bangladesh, IFDC is supporting the rapid diffusion of fertilizer deep placement (FDP) technology. Increasing farmers' demand for FDP technology and stimulating the supply and marketing system to improve farmers' access to the technology are crucial to sustainable success. At the macro level, the focus is on gaining government and donor endorsement of the technology. At the micro level, the primary focus is on:

- **Creating farmers' awareness and demand for FDP technology:** Over four cropping seasons, IFDC completed 3,880 farmer training programs, installed 386 technology demonstration plots, completed 109 FDP technology field days, and conducted 67 train-the-trainer programs for DAE staff. Advertising activities included (among others) the installation of more than 2,000 signboards and billboards, the development/dissemination of 135,000 technical brochures and the development of 72 cinema slides.

Source: IFDC unpublished project documents, 2009–11.

- **Stimulating supply system development:** Over 18 months, IFDC stimulated private entrepreneurs to invest (on a cost-sharing basis) in 157 FDP product briquette machines. Eighteen training programs targeting entrepreneurs were conducted. The results of concurrently addressing demand and supply issues related to diffusing FDP are impressive (see table B3.30).

Table B3.30 Impacts of Addressing Supply and Demand Issues Concurrently in Diffusing a New Fertilizer Technology

Rice area under fertilizer deep placement (FDP) technology	94,380 ha
Number of farm families adopting FDP	408,000
Incremental rice production	24,000 t
Farm family income increase	US\$8 million
Urea fertilizer savings	7,000 t
GOB subsidy reduction	US\$1.6 million
New urea briquette machines at dealer level	121

- **Duration and continuity are important.** A key lesson is that while one-time interventions in the priority areas described earlier are beneficial, they are less effective than longer-term interventions that provide agrodealers with continued support for development. Both remedial and more advanced training are important for achieving a sustainable impact. Program continuity allows for timely interaction with policy makers and donors.
- **Foster broad-based stakeholder involvement.** Strengthening dealers' capacity, building knowledge, fortifying support systems, and establishing business linkages are essential, but they are not enough to ensure productive agriculture and sustained economic development. A key lesson is that broad-based stakeholder involvement is essential to sustaining progress. It is important to engage

the ministry in charge of agriculture, the public extension service, commercial bankers, donors, and other relevant development agencies to the maximum extent in agrodealer development initiatives. Establish links with other projects to achieve synergies when possible. To achieve an element of ownership, dealers' cost-sharing is emphasized when feasible. The feasibility often depends upon the stage of market development. In seriously underdeveloped input markets, where demand from farmers is weak and risks are high, cost-sharing opportunities are quite limited. Dealers lack the resources to make a significant contribution to development. In more advanced markets, dealers' cost-sharing may range from providing the inputs for technology demonstrations to covering a portion of the costs involved in field days.

Federating Farmer Field Schools in Networks for Improved Access to Services

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SYNOPSIS

Field school networks, which mostly developed spontaneously, consist of informal or formal groupings of FFS groups with a common interest that draw their membership from all the FFSs within a given geographical or administrative boundary. Common interests at the network level are mainly marketing, advocacy, sharing information and experience, access to finance, and representation. From an innovation systems perspective, the role of extension and advisory services here is to assist in developing the needed capacity and linking producers to markets and service providers. Network operations are supported through subscription fees from constituent FFSs and other sources of income, such as interest on revolving funds, commissions on sales, registration fees, profits from input sales, and grants. Many networks operate a revolving loan system and therefore generate more funds to support operations and activities. Although the networks have shown themselves to be sustainable, their strength varies. Management, leadership, and organizational skills are needed to federate FFS networks. Networks are also vulnerable to individual motivation and capacity, since they are mostly managed by voluntary efforts among members and committee members. The networks that have been most successful are those with very committed, dynamic, and democratic leaders. Facilitating the formation of FFS networks should be considered in large-scale agricultural projects as a means to make a larger impact and make greater use of the social capital they generate. Lessons learned from the networks are that market information, while needed, is not obtained easily, and that network capacities for financial management, standards, and use of ICTs must be developed.

CONTEXT

Networks of Farmer Field Schools (FFSs) (see box 3.5 in this module's Overview) started emerging in East Africa in 2000

as an unforeseen effect of the IFAD/FAO East African Integrated Pest and Production Management project conducted with the Government of Kenya. The FFS networks took off because farmers wished to continue with the dynamics and positive attributes generated by the first phase of the project, even without external funding. To date, at least nine FFS networks in Eastern Africa support about 2,000 FFSs with close to 50,000 direct beneficiaries. They have no support from the initial project that established the field schools but have established new partnerships and collaboration with other stakeholders.

Definition of an FFS network

FFS networks consist of informal or formal groupings of FFS groups with a common interest that draw their membership from all the FFSs within a given geographical or administrative boundary. Each FFS elects one representative to the higher network level. These networks offer a number of services to FFS member groups and individual farmers. The networks are characterized as FFSs clustered in an association or not-for-profit company. They usually have an elected core executive board and at least three working committees, such as finance and planning, loans, and market information service. They have a constitution, by-laws, are registered, and have a bank account. The operations are supported financially by member FFS through subscription fees, commission on bulk sales, shares, or profit from the sale of farm inputs.

Evolution from individual groups into networks

As the number of FFS groups in the program grew and broadened their level of operation, new challenges and issues emerged that could not be solved by individual groups. There were also increased opportunities for the FFS

to take advantage of economies of scale, necessitating more interaction and coordination. Based on these developments and exchange visits and interactions between farmers, facilitators, trainers, and project staff in Western Kenya in early 2000, FFS networks emerged. The networks were formed mainly by FFS graduates. Aside from taking advantage of the opportunities just mentioned, the graduates wanted to continue the dynamics generated by the FFS process—to build local institutions to ensure the continuation of farmer-led FFS and gain a stronger voice in expressing their demand.

The inherent attributes of the FFS approach of cultivating cohesion and a willingness to learn together while solving problems that affect them as a community help to build their social capital. Common interests at the network level are mainly marketing, advocacy, sharing information and experience, access to finance, and representation. There is therefore no conflict of interest when different FFSs come together to form the network. As a precursor to transformation, the level of empowerment and organization developed in an FFS is critical and can have a significant impact on the marginal returns of a subsistence-based farming system. This strong cohesion within and among FFS groups is one of the main factors contributing to the emergence of higher-level federations¹ like the FFS networks.

BENEFITS TO FARMERS, IMPACT, AND EXPERIENCE

FFS network members state a range of benefits experienced by the networks. Important benefits appear to be increased voice and power and access to services and markets. Some of these benefits are especially important for women (box 3.31).

Despite the market barriers experienced by smallholders, the networks have been able to arrange collective marketing with its many advantages. The networks have assisted in identifying markets and collecting marketing information. A network-based monitoring and record system helps group members track the availability and quantity of their produce, making it possible to plan bulk sales and negotiate with buyers in advance of harvests. By selling in larger quantities, FFSs reduce transaction costs, gain bargaining power, and thus command better prices for their products. They have also been able to break or weaken manipulative relationships with market intermediaries and thereby gain access to more lucrative markets for their produce. Obtaining funds from government programs also appears to be easier for federated FFSs (box 3.32).

Box 3.31 Gender Issues in FFSs

FFSs have been shown to change gender relationships, mainly because they introduce a formal group structure but also because they operate under agreed group norms and rules. *All* issues brought to the group are accepted for discussion, so fewer subjects are off-limits. As a result, the position of women participating in FFSs has generally strengthened. In some East African communities, women dominate FFSs. Men are less interested in working in groups, although in some cases, they join at later stages of the FFS process.

Source: Authors.

To assist members in access to affordable inputs of reliable quality, such as seed and fertilizer, the networks have arranged bulk purchases of inputs for resale among members in smaller quantities, thus improving access and reducing costs. Many networks also operate small input kiosks at their offices.

By joining together, FFSs also gained access to technical and advisory services not normally available to individual FFSs or farmers. Government and other extension agents have been very responsive to requests for assistance by the networks, because they can reach more people.

Networking acts as a safety net and sustains the FFS process long after a given project ends. By jointly applying for/guaranteeing loans for individual members or groups and helping each other in the development of proposals, the federations have found it easier to obtain formal credit. Further, a savings fund is in place in most networks from which individual FFSs can borrow money through informal credit arrangements.

Finally, farmers appreciate the sharing of information and experience that networks facilitate. Through connections with other networks, member farmers exchange technical knowledge and new farming ideas in addition to benefitting from the social network in terms of mentoring, encouragement, and a feeling of togetherness. Farmers attribute their involvement in network activities to the social bonding and trust building taking place within the FFS. After networking and strengthening their capacity for collective action, member of FFSs have in many instances gained access to governance and policy processes, and they have also been invited by the government and other service organizations to represent farmers in official functions.

Box 3.32 A Kenyan Federation of Field Schools Benefits from Government Programs

As a result of becoming federated, the Kakamega FFS Network has obtained funds from government programs such as Njaa Marufuku (“ban hunger in Kenya”) and the Kenya Agricultural Productivity Project (KAAP), a World Bank-funded program. For example, the network obtained US\$10,000 from the Livelihoods Diversification and Enterprise Development Fund for building marketing capacity of network leadership, developing and introducing a farming-as-a-business curriculum, establishing a marketing office that uses a blend of appropriate technology, developing links to established agricultural commodity exchanges, intro-

Source: Authors.

ducing financial diversification and the role of credit in agriculture, and teaching an agricultural planning process called “plant-to-meet-market.” The network also received 2.8 million Kenya shillings (K Sh) (US\$40,000) from KAPP for coordinating marketing activities and agricultural commodity marketing. The funds were used mainly to purchase computer hardware and software, provide training in agribusiness and value chain management, and support service providers. Finally, through the network three FFS Groups obtained K Sh 120,000 (US\$1,715) each for vegetable production and marketing.

SUSTAINABILITY

FFS networks ensure their sustainability in a range of ways. Financially the operations of the networks are supported by the constituent FFSs through regular contributions in the form of subscription fees. Other sources of income include interest charged on revolving funds, commissions on bulk network sales, registration fees, fines or penalties, donations and grants, shares from FFS members, and profits from sales of inputs. Many networks operate a revolving loan system and therefore generate more funds to cover operations and fund activities. Some have managed to secure donor support.

Politically and institutionally the networks can be considered independent of government and development support. The networks are fully locally grown, owned, and managed. Donor support, where involved, has provided infrastructure and education. In no case have donors supported the networks’ recurrent operations. Running of FFSs by FFS networks is one way to reduce the costs of running FFSs; FFS networks have lower operating costs owing to lower transport costs, lower overheads, and cheaper facilitators (most are farmer facilitators).

To date the networks have shown themselves to be sustainable; all are still active. Their strength varies, however. Management, leadership, and organizational skills are needed to federate FFS networks. Networks are also vulnerable to individual motivation and capacity, since they are mostly managed by voluntary efforts among members and

committee members. The networks that have been most successful are those with very committed, dynamic, and democratic leaders.

Environmental sustainability is supported by using environmentally sound farming methods. FFS learning revolves around principles of integrated production and pest management, in which farmers balance the ecological and economic implications of particular practices for their farms and businesses.

SCALING UP

In most locations where a considerable number of FFSs have been implemented, FFS networks have spontaneously emerged. Currently FFS networks operate at different levels in many districts of East African countries (Kenya, Uganda, and Tanzania) and elsewhere in Africa (mainly Sierra Leone). Most networks have emerged in relatively high-potential (high-rainfall) areas, although some operate in semiarid and arid areas. As noted, the replication of FFSs is stimulated by FFS graduates’ wish to continue the dynamics generated by the FFS process and the recognized need to build local institutions. Through various modes of information sharing, networking is also promoted when farmers hear success stories from other places. In East Africa, the virtual network “Linking Local Learners,” which connects farmer groups and networks online, contributed to the growth and development of FFS networks.

The emergence and expansion of FFS networks has also been attributed to the “foci model”² adopted for the establishment of FFSs in East Africa. In this model, successive FFSs are established in the immediate neighborhood of existing ones to form a cluster. This strategy has enhanced the frequency of interaction, experience sharing, and the horizontal flow of information among groups. The model also reduces the cost of implementing collective activities because the FFSs can procure inputs and market their produce in bulk. Facilitating the formation of FFS networks should be considered in large-scale agricultural projects as a means to make a larger impact and make greater use of the social capital they generate.

LESSONS LEARNED AND ISSUES FOR WIDER APPLICATION

Farmer Field Schools are considered “stepping stones” to networks, federations, and associations and are an effective platform for farmer organization and empowerment. These networks serve an important role for farmers both in terms of social and technical support. The probability that networks will form can be increased if projects give attention to the longer-term prospects, if farmer facilitators and FFS alumni receive follow-up support, and farmer-driven network development is encouraged.

In the case of the East African FFS networks, market information clearly was crucial for enhancing farmers’ access to markets. Market information is not always easy for rural, often illiterate farmers to obtain. Extension advisors often are uncomfortable or incapable of changing their role from providing technical messages to acting as more of an information broker. The need to rethink the role of extension and (re-)train extension agents accordingly, discussed throughout this module, is clear.

Based on needs realized and expressed by networks, there is a demand for more attention to capacity building in financial management, marketing, standards and quality, and the use of ICT tools. Much of the current extension practice is targeted at improving technical skills, not management skills.

The principle of federating upon graduation must be incorporated into the curricula of all FFSs. As FFS networks grow and take on more complex initiatives, networks will need investments to acquire and learn to use ICTs to bridge the information gap, enhance the diversification of business opportunities, and improve operational efficiency. Computer and Internet access and skills are high priorities. Revolving funds need to be developed into more sustainable and long-term investments by supporting networks in identifying viable income-generating activities.

INCAGRO: Developing a Market for Agricultural Innovation Services in Peru

John Preissing, Food and Agriculture Organization of the United Nations (FAO)

SYNOPSIS

The INCAGRO project seeks to establish a national agricultural science and technology system that is decentralized, pluralistic, demand-driven, and led by the private sector. The project achieves this objective by strengthening the market for agricultural innovation services, increasing strategic competencies in agricultural research for development, and promoting the institutionalization of policies, information, and the quality of innovation services. The most notable innovation of INCAGRO was the emergence of a demand-driven market for agricultural innovation services that was more extensive and inclusive than before. This achievement came about as a result of empowering clients to formulate, cofinance, regulate, implement, monitor, and evaluate extension services through the mechanisms and tools offered through two competitive funds. One fund increased the demand and supply of extension services through competitive bidding, and the other expanded the number and quality of extension providers. Another innovation of INCAGRO is that it provided effective national yet decentralized support through regional offices and a central headquarters. The potential long-term impact or sustainability of the model has not been established (more care is needed to document ex post impacts), but it is clear that with appropriate backstopping farmers can become authentic drivers of agricultural extension systems. The competitive grant funds owed their success to transparent policies and rigorous selection and monitoring. A small staff functioning as agricultural innovation brokers throughout Peru promoted efficiency and effectiveness within the agricultural innovation market. Organizational development is needed to work with underserved groups (and also larger groups of farmers to decrease administrative costs). The emphasis must shift to developing a more sustainable system based on private cost recovery, funding partners, and government support.

BASIC PROJECT DATA

The Innovation and Competitiveness Program for Peruvian Agriculture (INCAGRO, Innovación y Competitividad para el Agro Peruano) contributed to the development of a market for agricultural innovation services by paying close attention to how demand for such services is generated and how those services are supplied. INCAGRO has led to technical innovations that bolstered production and productivity and institutional innovations that fostered potentially sustainable models for delivering innovation services. INCAGRO's primary partner has been the Ministry of Agriculture and the national agriculture research and innovation institute (Instituto Nacional de Innovación Agraria) (financing details are shown in box 3.33).

Box 3.33 Sources of Support for the Innovation and Competitiveness Program for Peruvian Agriculture (INCAGRO)

The first phase of the INCAGRO research and extension program (November 1999–January 2005) was financed through a World Bank Adaptable Program Loan (US\$9.6 million), the Government of Peru (US\$1.44 million), and local counterparts (US\$2.78 million), for a total of US\$13.82 million. The second phase (October 2005–December 2010) was financed through a second Adaptable Program Loan (US\$25 million) in addition to US\$6 million from the Government of Peru and US\$12 million from local counterparts, for a total of US\$43 million. As of this writing, financing for a third phase remains under review by the Government of Peru and the World Bank.

Source: Author, based on INCAGRO project documents and World Bank 2005.

CONTEXT

Peru's public extension services grew considerably from the mid-1950s to the mid-1980s, but in the years that followed, a range of factors led to their decline. The number and range of services supplied by Peru's public extension system became financially unsustainable owing to government financial limitations, privatization trends, and the inhibiting presence of the Shining Path guerilla group (Ortiz 2006). The system was considered too top-down, too supply-driven in its focus on technology transfer, and too centralized. Although large-scale commercial producers could still obtain extension services, small and medium producers came to rely on sporadic support from NGOs. A common concern with the extension services supplied by NGOs was that those organizations were not well integrated with the AIS and its knowledge and information subsystem.

Because the provision of agricultural innovation services to Peru's small and medium-sized farmers was particularly weak, in 1999 the government signed a letter of intent with the World Bank to promote agricultural innovation through the Bank's Adaptable Loan Program in three phases: the establishment of the innovation system; scaling up the system; and a final consolidation phase (presently under discussion). A key feature of the resulting INCAGRO project is the use of competitive funding schemes to promote a market for agricultural innovation services.

DEVELOPING A MARKET FOR AGRICULTURAL INNOVATION SERVICES

INCAGRO's main objective is to establish a national agricultural science and technology system that is modern, decentralized, pluralistic, demand-driven, and led by the private sector. The project's three components are designed to achieve this objective by: (1) strengthening the market for agricultural innovation services; (2) increasing strategic competencies in agricultural research for development; and (3) promoting the institutionalization of policies, information, and the quality of innovation services.

Agricultural technology fund: Competitive grants to improve the demand and supply side of the market for agricultural innovation services

The Agricultural Technology Fund (Fondo de Tecnología Agraria, FTA) has financed projects developed by farmer organizations for support in agricultural extension. Project proposals are based on business plans and use standardized logframes. Independent, three-member panels of

agribusiness leaders rate the proposals and determine which projects will be funded. The panels may also recommend changes in the content or size of the proposed projects. The INCAGRO team receives guidance from the evaluation panels for adjusting proposals with the farmer organizations. The exercise of developing a business plan, submitting proposals for competitive review, negotiating with INCAGRO "innovation brokers," and the follow-up monitoring and evaluation data demonstrates, particularly to farmers, that a positive return can be made on the investment in agricultural innovation services.

Proposals range from using innovation services to improve agricultural production and productivity to using them to improve agricultural products and agroindustry. To date, extension service projects covering 40 annual crops, 26 perennial crops, 10 kinds of farm animals, 11 kinds of fish, and 18 agroprocessing efforts have been funded. Crops include basic food crops as well as export crops, some raised organically.

An important aspect of the FTA model is that farmers own the project. They contract extension providers to complete a specified number of activities. Farmer groups are required to make a financial contribution in cash, plus any in-kind contributions. The cash contribution ranges between 15 and 30 percent of the total costs for extension projects. Farmers must form legal entities to sign contracts and receive government support. To meet these requirements, participants must be willing to collaborate, handle considerable legal paperwork, and have the capacity to manage and implement their projects.

The FTA fund makes it possible for farmer groups to gain organizational and project development skills by contracting an "ally" (*aliado*), a private individual or a public or private agency, to assist in formulating the project proposal, developing the corresponding business plan, identifying the right extension supplier, and managing project implementation on behalf of the farmer group (box 3.34 provides an example from the project). An ally is a new but critical innovation in the development of a functioning market for extension services. (For more on this concept, see the discussion of innovation brokers in TN 4.)

Competitive funds have expanded the market for extension service providers through various means. Producer organizations have hired their own extensionists, contracted individual private extension providers, signed agreements with NGOs, and partnered with cooperatives for the provision of extension services. The FTA guidelines for project proposals support a more holistic approach to agricultural innovation by including collaborating entities in the project proposal, such as private input and marketing firms in the

Box 3.34 An Ally Broadens Farmers' Skills to Articulate and Meet Their Demand for Innovation Services

Through the Agricultural Technology Fund, three cacao cooperatives in Huánuco Region partnered with an ally to acquire technical assistance and training in a project to increase the productivity of cacao, obtain certification for organic cacao production, and increase the marketing of their organic cacao. CAFÉ PERÚ (Central de Organizaciones Productoras de Café y Cacao del Perú) served as the ally and implementing agency for the project. The cooperatives received market analysis and specific training in cooperative management and product promotion. Starting from zero in the project's first year, more than 1,200 producers had obtained organic certification by the end of year three. Over the same period, cacao productivity rose from 340 to 600 kilograms per hectare, and the cooperative markets some 1,500 tons of organic cacao. Although cacao prices have risen overall, the productivity increases and the switch to organic production enabled producers' returns to rise from US\$ 546 to US\$ 1,543 per hectare. The total project cost was US\$ 158,716 over the three years. INCAGRO staff, along with CAFÉ PERÚ, played an important role in brokering the arrangement between national and local partners.

Source: Author, INCAGRO (<http://www.incagro.gob.pe>).

value chain as well as public agencies. Together, these collaborators form a strategic alliance that is formalized in an Agreement of Participation. The agreement establishes the roles and responsibilities of each member of the alliance, their respective contributions to the project, and the final disposition of any items obtained as a result of the project. The idea is that a strong strategic alliance will raise the probability of success.

In addition to developing extension-based projects, farmer organizations can develop adaptive research projects to verify the technical and economic suitability of research findings in the local setting. The research is participatory, requiring the producer-clients to become involved in identifying problems or opportunities in their fields and contribute actively during all stages of the research. Producers can use the strategic alliance framework to include other actors in the value chain as part of the adaptive research

business plan and use the ally to assist them in implementing the adaptive research project. The research entity can be a public or private institution or an individual with specific competencies required for the project. In this case, the farmer organization must meet 5 percent of project costs.

Strategic Services Development Fund: Improving the supply side of the market for agricultural innovation services

The Strategic Services Development Fund (FDSE, Fondo para el Desarrollo de Servicios Estratégicos) uses competitive matching grants to promote basic and applied strategic research, focusing on genetic resources, biotechnologies, plant and animal protection, natural resource management, postharvest technologies, and conservation agriculture. It is a demand-driven system (box 3.35 provides examples). These strategic research areas were defined through national as well as decentralized workshops, with actors in the value chain for all of Peru's major agricultural products, and on the basis of in-depth studies.

Projects must involve strategic alliances of at least two major stakeholders in the research. A specific entity must make the proposal and lead the research; collaborating research organizations are encouraged and increase the competitiveness of a proposal. Funding is capped at US\$125,000 per project. Grant recipients must match this funding by 50 percent or more through actual or in-kind resources. National, independent, three-member panels comprised of researchers evaluate proposals for funding.

A second purpose of the FDSE—to improve the supply of agricultural extension services—has proven useful for developing service providers. Competitive grants are awarded to train extension providers to establish extension services; use specific extension methods; learn particular crop and livestock practices, laboratory procedures, and postharvest storage practices; write and analyze business plans; and conduct market analysis. One example of how these funds are used is the training given by the Lambayeque Institute for Agricultural Development to extension providers in how to price and market their services. Another example is the value chains and improvements in value chain training on small livestock in Arequipa by the Institute for Development of the Informal Sector–Arequipa (IDESI, Instituto de Desarrollo del Sector Informal). Extension training providers have included cooperatives with their own staff, universities, national and regional research institutes, and national and regional NGOs. While this training has been useful

Box 3.35 Using Competitive Grants to Fund Multiple, Synergistic Innovation Services for a New Oilseed Crop in Peru

Competitive grants awarded by the *Agricultural Technology Fund*^a and Strategic Services Development Fund^b for nine interrelated projects provided extension services for producers, adaptive research, and strategic research for the development of Sacha Inchi, a native Amazon oilseed plant with high levels of omega fatty acids. The projects involved actors all along the value chain, including the Ministry of Agriculture and Institute of Peruvian Amazon Research, rootstock providers, regional producers' associations, extension providers, and processing and marketing associations. Extension services were offered to community-based or regional producer organizations on improving and

standardizing production, making production of organic Sacha Inchi more competitive, and improving producers' agribusiness skills. These projects reached 450 producers directly. Adaptive research projects included testing and validating two technology packages, one for organic production methods and the other for production and processing methods; these projects had 220 direct and 670 indirect beneficiaries. The four in-depth strategic research projects focused on integrated pest management methods, the identification and improvement of genetic lines of Sacha Inchi, the generation of elite lines, and asexual propagation methods.

Source: Author, INCAGRO (<http://www.incagro.gob.pe>).

a. Fondo de Tecnología Agraria; b. FDSE = Fondo para el Desarrollo de Servicios Estratégicos.

for improving the quality of the extension services market, it represented just 10 percent of the projects. According to the World Bank (2009), this low percentage reflects the small number of providers, the weakness of current and potential training institutions, and a lack of communication between the potential providers and suppliers.

Monitoring, evaluation, and policy development to support a high-quality market for agricultural innovation services

A key activity under the third component of INCAGRO has been to develop an effective project monitoring and reporting system that is agile and robust. For each project, baseline information is collected as part of the business plan proposal required for submitting the requests for funds. During the life of each project, data are collected during the "critical path" steps. At the end of each project, a final financial and technical report is prepared by the project executor. INCAGRO has developed strong, web-based tools (spreadsheets and templates) to aid in this analysis. Data for all of the projects are compiled for analyses by region, crop, type of intervention, gender, and other critical features.¹

Periodic evaluations helped to improve how INCAGRO is implemented. For example, based on initial findings from the World Bank's Independent Evaluation Group, the competitive fund strategy was redesigned to ensure that disadvantaged groups would have greater access to the

competitive funding cycles and have greater success in winning rounds. Stratifying the funds and providing direct assistance to targeted low-income groups were key features of INCAGRO's second phase.

RESULTS AND INNOVATIONS

The most notable innovation of INCAGRO was the emergence of a demand-driven market for agricultural innovation services that was more extensive and inclusive than before. This achievement came about as a result of empowering clients to formulate, cofinance, regulate, implement, monitor, and evaluate extension services through the mechanisms and tools offered by the two competitive funds (J. Ramirez-Gaston, personal communication, April 19, 2010). The demand and supply of extension services was increased through the FTA competitive bidding process, while the number and quality of extension providers increased through the FSDE.

Another innovation of INCAGRO is that it provides effective national yet decentralized support through seven regional offices and a central headquarters. Approximately 60 consultants led or supported the overall project, with an average of four per regional office (this number has fluctuated over the life of the project, based on competitive funding and activity levels). All INCAGRO staff members are consultants rather than permanent government employees. To improve their integration into the ministry, most INCA-

GRO offices are located at stations of the national agricultural research service, unless they are quite distant from a city center.

The impact of the individual projects funded by the grants has been significant, but challenges remain in ensuring a sustainable market for agricultural innovation services. There is no evidence yet that effective, sustained demand for technical assistance services exists or that the capacity to pay for these services (through increased incomes) will suffice to maintain them. In fact, one institutional challenge to the continued market for agricultural extension is the plethora of providers from NGOs and other government projects (some also funded by the World Bank) which provide technical assistance gratis or without competitive funding. Indicators of sustainability are discussed in the benefits section below.

BENEFITS, IMPACT, AND EXPERIENCE TO DATE

Two recent evaluations assessed the impact of INCAGRO (World Bank 2009; Ministry of Agriculture 2009). These and the INCAGRO database provide information on the project's near-term benefits and outcomes, but they are not conclusive on the potential long-term impact or sustainability of the model. Over eight years of INCAGRO's implementation, thousands of farmers demanded and received extension support (table 3.10). Over half of the funds used in the competitive grant projects came from financing provided by farmers and service providers, though much was in the form of in-kind contributions.

The two evaluation studies, using nonrandomized samples due to data limitations, reached positive findings on the project's impact. The Ministry of Agriculture study estimated that 56 percent of producers were likely to adopt the technology innovations, productivity increased by 86

percent, 77 percent of participants were willing to partially pay for extension services, the number of extension and research providers grew by 23 percent, and the diversity and quality of services increased by 25 percent. The same study calculated an internal rate of return between 23 and 34 percent, higher than typical returns for agricultural development projects. The benefit-cost ratio was estimated at two to one, and net present value at US\$15 million (2009). Using a different sample, the World Bank study concluded that the economic rate of return for the FTA projects was 39 percent. The Bank's study also reports that Barrantes et al. (2004) calculated an average economic rate of return of 76 percent for a selected number of extension projects.

Based on these analyses, INCAGRO appears to have been a sound investment and successful project. Equity remains a concern, however: The greatest beneficiaries were medium- to large-scale producers rather than the most disadvantaged producers, including women. Strategies were adopted in the second phase to target more vulnerable groups with separate funding, more support, and training. The results of this effort are not clear, but it has led to a perception that costs per client have become higher. Finally, while it is possible to conclude with confidence that the competitive grant projects represented strong investments, INCAGRO itself must be judged against its broader goal of generating a sustainable model for an agricultural innovation market for extension services.

LESSONS LEARNED AND ISSUES FOR WIDER APPLICATION

Peru now has many new competitive funding schemes supporting agriculture, including at least two other schemes managed by the Ministry of Agriculture and others by science and technology and innovation units. In interviews, these funders credit INCAGRO for much of the success of competitive funding schemes, including their role in developing competitive funding strategies; in building the capacity of producer organizations to follow rigorous funding protocols and implement projects; preparing a cadre of professionals that now manage other funds; developing a pool of competent service providers; and creating competitive funding mechanisms and tools that were directly adopted by the new funding agencies. These are actually some of the strongest signs of INCAGRO's sustainability, if not as a program then as a concept. The long-term sustainability of individual extension service providers is not guaranteed through competitive funding schemes, but

Table 3.10 Measures of INCAGRO Project Output

Projects supported through grants	Outreach and funding
Funding cycles: 36	72,000 farmers reached
FTA extension projects:	580,000 indirectly affected
34% to indigenous groups*	16% indigenous population*
12% to women's groups*	5.5% women farmers reached
1,211 proposals	directly*
330 approved	US\$43.7 million expended
FDSE extension training:	53% from cofinancing
349 proposals	67% used strategic alliances
51 approved	

Sources: INCAGRO (<http://www.incagro.gob.pe>); Benites and Wiener 2008.

* Some of these beneficiaries may be indigenous women.

such schemes may represent a sustainable model for extension provision. Quite possibly, future markets for agricultural innovation services will include multiple competitive funding schemes that seek efficiency and responsiveness on the part of extension providers and effective demand from farmers. This model or market may grow, shrink, or change focus based on who funds it and on what producers demand of it.

In summary, major lessons and issues have emerged from INCAGRO. Farmers can become authentic drivers of agricultural extension systems, but initially they require professional backstopping (by “allies”). Transparent policies and rigorous selection and monitoring procedures are keys to the success of competitive grant funds. INCAGRO’s operating procedures, information systems, and communication strategies were essential. A small number of staff

functioning as agricultural innovation brokers throughout Peru served to promote efficiency and effectiveness within the agricultural innovation market. Further, by basing staff throughout the country, INCAGRO supported national decentralization goals. Smaller projects dominated the market for extension services, incurring higher administrative costs. Organizational development is needed to work with underserved and also larger groups of farmers to decrease administrative costs (IAP 2). While it is important to focus on establishing funding cycles and tools, eventually the emphasis must shift to developing a more sustainable system based on private cost recovery, funding partners, and ongoing government support. Finally, more deliberate care is needed to document ex post impacts, including the careful and limited use of control groups to reach clearer conclusions on INCAGRO’s impact.

Combining Extension Services with Agricultural Credit: The Experience of BASIX India

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SYNOPSIS

Since 1996, BASIX has piloted and scaled up livelihood promotion initiatives in which an integrated triad of services—financial services, agricultural, livestock and enterprise development services, and institutional development services—is delivered on a fee-for-service basis. BASIX has reached as many as 3.5 million poor households across 19 states in India. The emphasis has been less on increasing agricultural production than on reducing production costs through a variety of agricultural and business development services. A thorough analysis and understanding of particular subsectors (paddy, groundnut, dairy, and soy, among others) helped identify opportunities for increasing incomes and develop appropriate products and services. Facilitating linkages with high-end markets also resulted in a net increase in producers' incomes. Because products and services were tailored to customers' diverse needs, they were willing to pay for them. The mix of services enabled customers (primarily the rural poor) to increase their incomes from their crops, livestock, and other enterprises. While it is widely understood that financial services alone are insufficient for promoting livelihoods, BASIX provides an innovative strategy for offering such integrated services in a financially sustainable manner.

CONTEXT

More than 80 percent of India's roughly 90 million farm households operate on a small or marginal scale, farming less than two hectares. Most of them also usually have one or two buffaloes or cows, reared for milk and dung. Given that most small-scale and marginal farmers fall below the poverty line, any improvement in their income will help to reduce overall poverty in India. Credit can help farmers obtain yield-enhancing inputs (improved seed, fertilizer,

cattle feed) as well as irrigation pumps and crossbred cattle, but BASIX realized that financial services alone could not raise farmers' incomes. Farmers also needed awareness of better agricultural practices and preventive animal healthcare to reduce risk and costs. In other words, they needed a range of agricultural and livestock development services to gain the knowledge to improve crop and livestock production, mitigate risk, and develop stronger links to markets.

OBJECTIVE AND DESCRIPTION

BASIX (www.basixindia.com) began in 1996 "to promote a large number of sustainable livelihoods, including for the rural poor and women, through the provision of financial services and technical assistance in an integrated manner." BASIX, recognized as a pioneer in livelihood promotion, now operates in over 40,000 villages across 19 states in India with more than 3.5 million poor households.

For the first five years, BASIX delivered what it called "microcredit plus" services to clients. The "plus" components were Technical Assistance and Support Services (TASS), provided through various programs:

- **Dryland Agriculture Productivity Enhancement Program (DAPEP).** DAPEP introduced new crops or varieties; arranged for inputs such as seed, fertilizer, and pesticides (including biopesticides); provided extension support for new agronomic practices to cut costs and increase yields; and arranged for collective transport, processing, and purchase of produce by local agencies and companies.
- **Inter Borrower Exchange Program (IBEX).** IBEX focused on the exchange of expertise among borrowers on better management practices and local innovations.
- **External Resource Person Advisory Program (ERAP).** ERAP invited experts to serve as resource persons to

deliver advisory services on required topics and practices.

- **Self Help Group Quality Improvement Program (SHGQIP).** A microfinance agent model for promoting self-help groups was tested under this program.
- **Rural Infrastructure Revival (RIR).** Local community resources were activated to rehabilitate lift irrigation, the electricity supply, milk chilling plants, and other infrastructure.

These programs delivered services on a full grant basis or 50:50 or 75:25 cost sharing by customers and BASIX, depending on need and customers’ willingness to pay. Under the triad strategy described in the next section, these services evolved into the services listed in table 3.11.

RATIONALE FOR BASIX’S TRIAD STRATEGY

In 2001, BASIX asked the Indian Market Research Bureau, an independent external agency, to assess the impact of BASIX among recipients of its services. Only 52 percent of customers who had received at least three rounds of microcredit had significantly improved their incomes, compared with a control group who received no credit. Income levels did not change among 25 percent of customers; 23 percent reported a decline.

BASIX carried out a detailed study of those who had experienced no increase or a decline in income and concluded that this outcome arose from unmanaged risk, low productivity, and limited access to markets, combined with poor terms for buying inputs and selling output. The analysis clearly identified several needs: to improve farmers’ productivity, offer services to mitigate risk, improve producers’ links to markets, and organize producers to gain a stronger bargaining position.

(See TN 2, which discusses the need for financial services, and IAP 2, which explains how to build strong federations of farmer groups to obtain better services.) In 2002, BASIX developed a “livelihood triad” strategy to provide comprehensive livelihood promotion services to poor rural households. Box 3.36 describes how services evolved for one particular subset of clients.

INNOVATIVE ELEMENT

As mentioned, the livelihood triad strategy includes the provision of financial inclusion services; agricultural, livestock and enterprise development services; and institutional development services detailed in table 3.11. Under Agricultural, Livestock, and Enterprise Development (AGLED) services, BASIX currently provides services to farmers growing several crops (cotton, groundnuts, soybeans, pulses, paddy rice, chilies, vegetables, mushrooms) (box 3.37) and lac (a form of organic resin) and producing milk and livestock (poultry, sheep, and goats).

Nonfarm business development services are also provided for selected activities such as tailoring, woodworking, bamboo work, retail stores, and niche handicrafts and handlooms. An example of the need for institutional development services beyond financial assistance is given in box 3.38.

ACHIEVEMENTS

Today BASIX works in more than 40,000 villages through a network of over 250 branches, each with five field executives under a team leader. Each field executive supervises five livelihood service advisers (LSAs). Each LSA covers about 10 villages, originating credit, selling insurance, collecting

Table 3.11 Services Included in the BASIX Livelihood Triad

Financial inclusion services	Agricultural, livestock, and enterprise development services	Institutional development services
Savings (directly in districts where BASIX has a banking license and through other banks elsewhere)	Improved productivity through higher yields from improved seed or practices	On an individual level, develop awareness, skills, and entrepreneurship
Credit: agricultural, allied, and nonfarm, short and long term	Improved productivity through cost reductions	Form producer groups, federations, cooperatives
Insurance for lives and livelihoods, including index-based weather insurance for crops	Risk mitigation (other than insurance), such as livestock vaccinations	Functional training in accounting and management information systems, using information technology
Money transfer, for migrant workers	Local value addition, such as processing cotton into lint (fiber) before selling	Build collaboration to deliver a wide range of services
Experimental products such as micropensions and warehouse receipts	Alternative market linkages: input supply and output sales	Sector and policy work: analysis and advocacy for changes and reforms

Source: Vijay Mahajan, BASIX.

Box 3.36 BASIX Services for Groundnut Farmers in Andhra Pradesh: From Financial Services to Livelihood Triad Services

In 2001–03, BASIX was working in Anantapur District, which had 700,000 groundnut farmers, with support from ICICI Bank. Based on recommendations from research institutes,^a the program introduced drought-tolerant cultivars and agronomic practices to reduce the effects of drought, but three years of severe drought dashed efforts to raise groundnut yields. BASIX had greater success with improving groundnut marketing. BASIX formed a farmer cooperative and facilitated it to lease a local factory to shell groundnuts—an activity formerly done by intermediaries. This value-adding step enabled farmers to sell their produce at a higher price. Women’s self-help groups bought groundnuts produced under irrigation in the *rabi* (winter) crop cycle and processed them for sale. Large hand-processed nuts were sold as seed for the upcoming *kharif* (summer monsoon) crop cycle, and smaller ones were sold for bird feed.

Source: S. Amarnath and K. Vasumathi, BASIX.

(a) The International Crops Research Institute for the Semi-Arid Tropics and the Central Research Institute for Dryland Agriculture.

These interventions offered little for rainfall-dependent farmers affected by drought, however. Dairy production was promoted as an alternative livelihood strategy in 2003. BASIX identified villages to form milk collection routes, educated farmers in dairy farming, helped villagers grow fodder where some irrigation sources were available, and negotiated linkages with nearby bulk chilling centers established by the Andhra Pradesh Dairy Development Cooperative Federation. The market linkages facilitated with the federation led to the revival of chilling centers in Kalyandurg and Kannekal. Chilling center capacity increased from 2,000 liters to 10,000 liters. Outreach to women, for whom dairy became a primary livelihood activity, increased. Migration from the area declined. Many such efforts have led to the BASIX “livelihood triad” of services (financial inclusion services; agricultural, livestock, and enterprise development services; and institutional development services).

Box 3.37 AGLED Services for Mushroom Cultivation

BASIX seeks to enhance clients’ awareness of good practices related to their investments. One example is the fee-based Mushroom Development Services Package, which BASIX offers to customers who have sufficient space to raise mushrooms as an additional source of livelihood. The package includes:

- A review of the primary requirements for mushroom cultivation. A suitable location and the use of specific materials are key factors for good mushroom production.
- Mushroom bed installation (including straw-cutting techniques, soaking straw in water, preparing the bed using spawn and feeding material), aftercare for optimum production, identification of poisonous mushrooms, and precautions to be taken.

Source: Tapaskumar Pati, BASIX.

- An assessment of mushroom beds for progress of mycelium growth. Training is provided to conduct regular inspections of beds to ensure regular growth of mycelium, avoid losses, and enhance production.
- Training in measures to mitigate the effects (and risks) of high temperatures and low humidity.
- Training in producing two value-added products. It can sometimes be difficult to sell raw mushrooms. Value-added products such as mushroom pickles and soup always fetch higher prices and increase profits for producers.
- Input market linkages for spawn and polythene. BASIX helps customers identify sources of good spawn and facilitates the procurement of polythene and spawn.

Box 3.38 Contract Farming for Potato: The Need for Strong Farmer Organizations

BASIX became involved with financing the potato value chain in Jharkhand in 2005. PepsiCo was already buying potatoes from some farmers in Jharkhand but on a very limited scale. It approached BASIX to facilitate contract potato farming on a larger scale. BASIX had strengthened its capacity as a facilitator and subsequently helped negotiate contracts between PepsiCo and small-scale potato farmers to supply agreed quantities of potatoes at a specified quality and price to PepsiCo's chip-making factory in Kolkata. Although in the first years the contract resulted in increased yields and higher incomes for farmers, in later years farmers' yields were affected by problems with seed quality, heavy disease infestations, and unfavorable weather. Sometimes their potatoes were rejected at the factory because of poor quality, and other times they resorted to the open market, where they obtained better prices. Clearly the partners needed more than finance to continue their association productively. BASIX invested in strengthening the relationships with partner organizations and the farming community to ensure that contracts operated fairly.

Source: Mishra 2008.

payments, and selling AGLED services. Repayment schedules depend on the crop, cropping season, and household cash flows and range from 6 to 11 months and 1–3 installments. BASIX has more than 4,000 LSAs.

BASIX field executives identify and select villages or clusters of villages to receive services. A cluster is a group of villages within a radius of 6–8 kilometers, which offers a reasonable base for delivering services effectively and efficiently to customers. The branches start enrolling customers for services in villages where at least 30 borrowers engage in either crop or livestock activities.

BASIX has a cadre of over 1,000 livelihood services providers (LSPs). While LSAs function as salespeople, LSPs resemble extension agents. An LSP works with BASIX on a regular basis and is typically a high-school graduate trained as a para-extension worker or para-veterinarian. He or she covers 200–400 customers for one crop or activity. More than 10 percent of the LSAs and over 15 percent of the LSPs

are women. BASIX distributes product brochures in regional languages telling customers what services they can receive and explaining the service conditions. Customers pay 450 rupees (Rs) (US\$10), including a service tax, for a year of AGLED services.

In 2010, AGLED services had over half a million customers. About half of them used agricultural and livestock services, and the remainder used services related to nonfarm activities. Among the agricultural services, BASIX provided a soil-testing service for more than 30,000 farmers, integrated pest management or integrated nutrient management services to nearly 160,000 crop customers, and field surveillance to more than 85,000 farmers. It connected most customers to input markets (seed, fertilizer, pesticide, and bio-inputs such as vermicompost and organic pesticide) and output markets. BASIX provided index-based weather insurance to more than 10,000 farmers for different crops in different agroclimatic zones in 2009, in collaboration with private insurance companies.

BASIX also conducted health checkups of nearly 450,000 animals, vaccinated nearly 165,000, and dewormed 200,000 animals. It trained more than 170,000 customers in feed, fodder, and other improved practices for dairying. More than 60,000 farmers were linked to milk marketing chains supported by cooperatives or private companies. More than 120,000 animals were insured in collaboration with private companies.

LESSONS LEARNED

It has taken BASIX about seven years to reach the scale described, and it has learned many lessons along the way. Lessons that may prove useful for similar initiatives are summarized here.

■ *It is vital to respond proactively to farmers' needs.*

In its first two years, BASIX emphasized market research to identify which services farmers needed. The organization also conducted action-research through many pilot interventions. This research, which featured numerous field visits and group interactions with farmers, showed that small-scale farmers preferred cost-saving and risk-reducing interventions over yield-enhancing interventions requiring greater cash outlays. BASIX also learned that it was not possible to handle such interventions for a large number of crops, so it focused on a few crops grown by a large number of farmers, such as groundnuts in southern Andhra Pradesh, cotton in northern Andhra Pradesh, and soybeans in western Madhya Pradesh.

- ***In designing services, focus on reducing costs.*** Productivity can be increased by raising yields as well as by reducing the costs of producing the same amount of output. Local agricultural universities and research stations had developed many practices for increasing yields, so BASIX decided to focus on reducing costs. One example of this approach was to apply pesticide on cotton stems to reduce pest multiplication and reduce pesticide applications later in the season. Another example was the introduction of soil testing to enable more precise, economical fertilizer use. For dairy animals, simple practices like vaccination and periodic deworming were more cost-effective than procuring high-yielding crossbred animals.
 - ***Customized services enhance willingness to pay.*** BASIX staff learned how to customize AGLED services to different agroclimatic zones, which enhanced farmers' willingness to pay for services. Customer satisfaction surveys conducted by independent audit teams found that the satisfaction level was nearly 80 percent; the main cause of dissatisfaction was inadequate visits from LSPs. To improve service, field executives introduced tighter monitoring of service delivery through passbooks, acknowledgement receipts, and service cards, but this practice was expensive. BASIX is piloting a strategy to monitor service delivery through mobile phones so farmers can report LSPs for poor service or missed visits.
 - ***Sustainability and extension of services to larger farmers.*** The income from AGLED services in 2010 was nearly Rs 148 million (US\$3 million). BASIX made a modest profit (nearly Rs 22 million or US\$450,000) by providing these services to over half a million customers. With more LSPs reaching the breakeven number of customers, profitability is likely to improve. BASIX also plans to move some basic facilities like soil-testing labs and artificial insemination centers under its own control to improve its service to farmers.
- Although BASIX agricultural credit operations are aimed at small-scale and marginal farmers, the organization plans to extend AGLED services to larger farmers to whom it does not extend credit in the same villages. In improving their yields, these farmers will generate additional production as well as employment opportunities for the landless poor, outcomes aligned with the BASIX mission. So far BASIX has worked mainly in poorer dryland districts. It is considering providing AGLED services in irrigated districts and for large-scale farmers where it has no credit operations through its new BASIX Krishi company. With these changes, BASIX is confident of reaching two to three million farmers with AGLED services by 2015.

NOTES

Module 3 Overview

1. It is useful to have a conceptual and analytical framework for implementing and analyzing extension reforms with a focus on pluralistic extension. Such a framework has been developed by a multidisciplinary group of researchers, and it distinguishes four sets of factors that need to be considered: the policy environment, the capacity of potential service providers, the type of farming systems and the market access of farm households, and the nature of the local communities, including their ability to cooperate. The analytical framework then “disentangles” the major characteristics of agricultural advisory services for which policy decisions must be made (“choice variables”): governance structures, capacity, management, organization, and advisory methods. Implementation of the resulting extension programs and reforms should focus on “best fit” rather than “best practice.” For more information see Birner et al. (2009).

2. Many of the points in the table and this section are based on Birner et al. (2009).

3. These strategies and lessons are relevant for other advisory service programs; for more information, see Braun and Duveskog (2009) and Davis et al. (2010a).

4. See the discussion of the scaling-up tool developed by ZALF (the Leibniz Centre for Agricultural Landscape Research), described in Herberg and Schoening (2010).

Thematic Note 1

1. Farm Radio International (www.farmradio.org), an NGO that reaches millions of rural people, is one example.

Thematic Note 2

1. Others refer to these services as “value chain oriented services” (KIT, Faida Mali, and IIRR 2006; Webber and Labaste 2010), “Market-Oriented Agricultural Advisory Services” (Chipeta, Christoplos, and Katz 2008), and “marketing extension” (FAO, <http://www.fao.org/ag/ags/agricultural-marketing-linkages/marketing-extension/en>).

2. These actors have (re-)discovered the need to address small-scale farmers’ demands; see, for example, the roundtable for a sustainable cocoa economy (www.roundtablecocoa.org) and the sustainable spices initiative (<http://www.kit.nl/spiceconference>).

3. “Republic of Mozambique: Country Programme Evaluation, IFAD http://www.ifad.org/evaluation/public_html/

[eksyst/doc/country/pf/mozambique/index.htm](http://www.ifad.org/evaluation/public_html/eksyst/doc/country/pf/mozambique/index.htm), accessed July 2011.

4. KIT and IIRR (2012). Women’s skills and techniques can be assets for entrepreneurship, and services should be tailored to their circumstances as individual entrepreneurs and within groups. Capacity-building strategies and programs with a gender focus are helpful (Kahan 2007: 90-92).

5. A priority of AFAAS (www.afaas-africa.org).

6. Examples include sesame, peppers, and organic and Fair Trade produce (Jaleta, Gebremedhin, and Hoekstra 2009; Kristjanson et al. 2009).

7. AgriProfocus (<http://www.agri-profocus.nl>) fosters concerted efforts by public and private agencies to support smallholders’ farming entrepreneurship.

Innovative Activity Profile 1

1. This IAP focuses primarily on agrodealers who continuously engage in supplying inputs. In reality, businesses that supply agro-inputs operate on a seasonal basis in many emerging markets. They often sell inputs as complementary products to their core general merchandise business. Subdealers, or “stockists,” play a key role in improving farmers’ access to inputs. This IAP focuses on agrodealers and only alludes to the development of subdealers/stockists.

2. Macroenvironmental factors (in particular the government’s role in a country) substantially influence agrodealer participation in agricultural input markets.

3. The terms “value chain” and “agricultural input supply and marketing chain” are considered synonymous in this IAP. For consistency, this IAP uses the more contemporary “value chain” terminology.

4. Activities are varied and may include lectures, group discussions, role-playing, case studies, problem solving, hands-on analysis (such as the use of soil test kits), individual and group presentations, special studies to design promotional programs, observation/hands-on application of agricultural inputs, product displays, and videos, among others.

Innovative Activity Profile 2

1. Federations in this paper are defined as farmer organizations that have emerged from bottom-up empowerment processes (such as the training of farmers’ groups), leading to a higher level of organization at a given administrative or geographical level.

2. Growing from a nucleus outwards.

Innovative Activity Profile 3

1. Information on INCAGRO's subproject management and M&E tool (SIGES, Sistema de Gestión de Sub Proyectos) is available at http://www.incagro.gob.pe/WebIncagro/detalleArticulosBanner.do?c_codigoArticulo=000166.

REFERENCES AND FURTHER READING

Module 3 Overview

- Alawy, A.S. 1998. Accessibility of Women's Groups to Agricultural Extension Services in Kenya: An Exploratory and Descriptive Study of Factors, Needs, and Problems. Unpublished PhD thesis, Ohio State University, Columbus.
- Alston, J., C. Chan-Kang, M. Marra, P. Pardey, and T.J. Wyatt. 2000. "A Meta-analysis of Rates of Return to Agricultural R&D: *Ex Pede Herculem?*" IFPRI Research Report No. 113. Washington, DC: International Food Policy Research Institute (IFPRI).
- Anderson, J.R. 2006. "Training and Visit (T&V) Extension Method." In the Sustainable Funding for Agricultural Innovation Systems Electronic discussion (<http://www.dgroups.org/groups/worldbank/LAC-AgInnovations/index.cfm>), which includes the Anderson video clip (http://www.gdln-lac.org/wms/Agriculture_Message_Series-08-15-2006-high%20bandwidth.WMV), accessed September 2011.
- Anderson, J.R. 2007. "Agricultural Advisory Services." Background paper for *World Development Report 2008, Agriculture for Development*, World Bank, Washington, DC.
- Anderson, J.R., and G. Feder. 2004. "Agricultural Extension: Good Intentions and Hard Realities." *The World Bank Research Observer* 19(1):41–60.
- Benin, S., E. Nkonya, G. Okecho, J. Pender, S. Nahdy, S. Mugarura, and G. Kayobyo. 2007. "Assessing the Impact of the National Agricultural Advisory Services (NAADS) in the Uganda Rural Livelihoods." IFPRI Discussion Paper No. 724. Washington, DC: International Food Policy Research Institute (IFPRI).
- Benor, D., and M. Baxter. 1984. *Training and Visit Extension*. Washington, DC: World Bank.
- Birkhaeuser, D., R.E. Evenson, and G. Feder. 1991. "The Economic Impact of Agricultural Extension: A Review." *Economic Development and Cultural Change* 39(3):607–40.
- Birner, R., K. Davis, J. Pender, E. Nkonya, P. Anandajayasekaram, J. Ekboir, A. Mbabu, D. Spielman, D. Horna, and S. Benin. 2009. "From Best Practice to Best Fit: A Framework for Analyzing Agricultural Advisory Services Worldwide." *Journal of Agricultural Extension and Education* 15(4):341–55.
- Blackden, M., S. Canagarajah, S. Klasen, and D. Lawson. 2006. "Gender and Growth in Sub-Saharan Africa: Issues and Evidence." Research Paper No. 2006/37. Tokyo: United Nations University World Institute for Development Economics Research.
- Braun, A.R., and D. Duveskog. 2009. The Farmer Field School approach: History, global assessment, and success stories. Unpublished report for the IFAD *Rural Poverty Report 2009*, International Fund for Agricultural Development (IFAD), Rome.
- Chema, S., E. Gilbert, and J. Roseboom. 2003. "A Critical Review of Key Issues and Recent Experiences in Reforming Agricultural Research in Africa." ISNAR Research Report No. 24. The Hague: International Service for National Agricultural Research (ISNAR).
- Christoplos, I. 2010. *Mobilizing the Potential of Rural and Agricultural Extension*. Rome: Food and Agriculture Organization of the United Nations (FAO) and the Global Forum for Rural Advisory Services (GFRAS).
- Davis, K. 2008. "Extension in Sub-Saharan Africa: Overview and Assessment of Past and Current Models and Future Prospects." *Journal of International Agricultural and Extension Education* 15(3):15–28.
- . 2009. "The Important Role of Extension Systems." Brief 11 in "Agriculture and Climate Change: An Agenda for Negotiation in Copenhagen." 2020 Vision Focus 16. Washington, DC: International Food Policy Research Institute (IFPRI).
- Davis, K.E., and B.K. Addom. 2010. "Sub-Saharan Africa." In *ICTs for Agricultural Extension: Global Experiments, Innovations, and Experiences*, edited by R. Saravanan. New Delhi: New India Publishing Agency.
- Davis, K., E. Nkonya, D.A. Mekonnen, E. Kato, M. Oendo, R. Miiro, and J. Nkuba. 2010a. "Impact of Farmer Field Schools on Agricultural Productivity, Poverty, and Farmer Empowerment in East Africa." IFPRI Discussion Paper. Washington, DC: International Food Policy Research Institute (IFPRI).
- Davis, K., B. Swanson, D. Amudavi, D.A. Mekonnen, A. Flohrs, J. Riese, C. Lamb, and E. Zerfu. 2010b. "In-depth Assessment of the Public Agricultural Extension System in Ethiopia and Recommendations for Improvement." IFPRI Discussion Paper No. 01041. Washington, DC: International Food Policy Research Institute (IFPRI).
- Dercon, S., D.O. Gilligan, J. Hoddinot, and T. Woldehanna. 2008. "The Impact of Agricultural Extension and Roads on Poverty and Consumption Growth in Fifteen Ethiopian Villages." IFPRI Discussion Paper. Washington, DC: International Food Policy Research Institute (IFPRI).
- Dixie, G. 2005. *Horticultural Marketing*. Marketing Extension Guide No. 5. Rome: Food and Agriculture Organization of the United Nations (FAO).

- Engel, P., and M. Salomon. 1997. *Facilitating Innovation for Development*. Amsterdam: Royal Tropical Institute (KIT).
- Frank, E. 1999. Gender, agricultural development, and food security in Amhara, Ethiopia: The contested identity of women farmers in Ethiopia. Unpublished paper, United States Agency for International Development (USAID), Washington, DC.
- Gender and Governance Research Team. 2009. *Gender and Governance in Rural Services: Insights from India, Ghana, and Ethiopia*. Washington, DC: World Bank and International Food Policy Research Institute (IFPRI).
- Government of Kenya. 2005. *National Agricultural Sector Extension Policy (NASEP)*. Nairobi: Ministry of Agriculture, Ministry of Livestock and Fisheries Development, and Ministry of Cooperative Development and Marketing.
- Hafkin, N., and N. Taggart. 2001. "Gender, Information Technology, and Developing Countries: An Analytical Study." Washington, DC: Academy for Educational Development and the Office of Women in Development, Bureau for Global Programs, Field Support and Research, United States Agency for International Development (USAID).
- Hanson, J.C., and R.E. Just. 2001. "The Potential for Transition to Paid Extension: Some Guiding Economic Principles." *American Journal of Agricultural Economics* 83(3):777–84.
- Haug, R., 1999. "Some Leading Issues in Agricultural Extension: A Literature Review." *Journal of Agricultural Education and Extension* 5(4):263–74.
- Heemskerk, W., N. Lema, D. Guindo, C. Schouten, Z. Semgalawe, H. Verkuijl, B. de Steenhuijsen Piters, and P. Penninkhoff. 2003. *A Guide to Demand-driven Agricultural Research: The Client-oriented Research Management Approach*. Amsterdam: Institut d'Economie Rural (IER), Department for Research and Development, and Royal Tropical Institute (KIT). <http://www.kit.nl/smartsite.shtml?id=SINGLEPUBLICATION&ItemID=1500>, accessed July 2011.
- Heemskerk, W., and B. Wennink. 2004. "Building Social Capital for Agricultural Innovation: Experiences with Farmer Groups in Sub-Saharan Africa." KIT Bulletin No. 368. Amsterdam: Royal Tropical Institute (KIT).
- Heemskerk, W., S. Nederlof, and B. Wennink. 2008. "Outsourcing Agricultural Advisory Services: Enhancing Rural Innovation in Sub-Saharan Africa." KIT Bulletin No. 380. Amsterdam: Royal Tropical Institute (KIT).
- Herberg, L., and A. Schoening. 2010. "Sustainet: Scaling up Sustainable Agriculture." *Rural21: The International Journal for Rural Development* 44(2):21–23.
- Hoffmann, V., M. Gerster-Bentaya, A. Christinck, and M. Lemma (eds.) 2009. *Basic Issues and Concepts*. Volume 1 of *Handbook: Rural Extension*. Weikersheim: Margraf.
- KIT (Royal Tropical Institute), Faida Mali, and IIRR (International Institute of Rural Reconstruction). 2006. "Chain Empowerment: Supporting African Farmers to Develop Markets." Amsterdam, Arusha, and Nairobi.
- Kithuka, J., J. Mutemi, and A.H. Mohamed. 2007. "Keeping up with Technology: The Use of Mobile Telephony in Delivering Community-based Decentralised Animal Health Services in Mwingi and Kitui Districts, Kenya." FARM-Africa Working Paper No. 10. London: FARM-Africa.
- Leeuwis, C., and A. van den Ban. 2004. *Communication for Rural Innovation (Rethinking Agricultural Extension)*. Oxford: Blackwell Science.
- Nederlof, E.S., B. Wennink, and W. Heemskerk. 2008. "Access to Agricultural Services." Background paper for the International Fund for Agricultural Development (IFAD) *Rural Poverty Report 2010*. IFAD, <http://www.ifad.org/rural/rpr2010/background/3.pdf>, accessed September 2011.
- Praneetvatakul, S., and H. Waibel. 2006. "Impact assessment of farmer field school using a multi-period panel data model." Presented at the 26th conference of the International Association of Agricultural Economists (IAAE), Brisbane, 12–18 August 2006.
- Quisumbing, A.R. (ed.). 2003. *Household Decisions, Gender, and Development: A Synthesis of Recent Research*. Washington, DC: International Food Policy Research Institute (IFPRI).
- Quizon, J., G. Feder, and R. Murgai. 2001. "Fiscal Sustainability of Agricultural Extension: The Case of the Farmer Field School Approach." *Journal of International Agricultural and Extension Education* (Spring):13–23.
- Rahmato, D. 1993. "Land, Peasants, and the Drive for Collectivization in Ethiopia." In *Land in African Agrarian Systems*, edited by T.J. Bassett and D.E. Crummey. Madison: University of Wisconsin Press.
- Rajalahti, R., J. Woelcke, and E. Pehu. 2005. "Monitoring and Evaluation for World Bank Agricultural Research and Extension Projects: A Good Practice Note." Agriculture and Rural Development Discussion Paper No. 20. Washington, DC: The World Bank.
- Rivera, W.M., and G. Alex. 2004. "Extension Reform for Rural Development." Agriculture and Rural Development Discussion Paper No. 10. Washington, DC: World Bank.
- Spielman, D.J., and R. Birner. 2008. "How Innovative Is Your Agriculture? Using Innovation Indicators and Benchmarks to Strengthen National Systems." Agriculture and Rural Development Discussion Paper No. 41. Washington, DC: World Bank.

- Spielman, D.J., K. Davis, M. Negash, and G. Ayele. 2011. "Rural Innovation Systems and Networks: Findings from a Study of Ethiopian Smallholders." *Agriculture and Human Values* 28(2):195–212.
- Sulaiman, S.V., and A. Hall 2002. "Beyond Technology Dissemination: Can Indian Agricultural Extension Reinvent Itself?" ICAR Policy Brief No. 16. New Delhi: International Council of Agricultural Research (ICAR).
- Swanson, B., and R. Rajalahti. 2010. "Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems." Agricultural and Rural Development Discussion Paper No. 44. Washington, DC: World Bank.
- Swanson, B.E., B.J. Farner, and R. Bahal 1990. "The Current Status of Agricultural Extension Worldwide." In *Report of the Global Consultation on Agricultural Extension*, edited by B.E. Swanson. Rome: Food and Agriculture Organization of the United Nations (FAO). Pp. 43–76.
- Torero, M., S. Chowdhury, and A. Bedi. 2006. "Telecommunications Infrastructure and Economic Growth" Chapter 5 in *Information and Communications Technology for Development and Poverty Reduction*, edited by M. Torero and J. von Braun. Baltimore: Johns Hopkins.
- Wennink, B., E.S. Nederlof, and W. Heemskerk (eds.). 2007. "Access of the Poor to Agricultural Services: The Role of Farmers' Organizations in Social Inclusion." KIT Bulletin No. 376. Amsterdam: Royal Tropical Institute (KIT).
- World Bank. 2006a. "Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems." Washington, DC: World Bank.
- . 2006b (revised). "Investment in Agricultural Extension and Information Services." Module 3 in *Agriculture Investment Sourcebook*. Washington, DC: World Bank. www.worldbank.org/ard/ais, accessed July 2011.
- . 2011. *Information and Communication Technologies for Agriculture e-Sourcebook*. <http://bit.ly/ICTinAG>. Washington, DC.
- World Bank, United Nations Development Programme (UNDP), and United Nations Development Fund for Women (UNIFEM). 2010. Presentation from Session 4: Governance and Fragility and Session 2. Challenges for Service Delivery for Women in Post Conflict States. Innovations and New Directions in the World Bank and the United Nations. New York.
- sub-Saharan Africa: An innovative approach to rural development. Proposal for a Partnership Programme.
- Blewett, T.J., A. Keim, J. Leser, and L. Jones. 2008. "Defining a Transformational Education Model for the Engaged University." *Journal of Extension* 46(3).
- Chapman, R., and R. Tripp. 2003. "Changing Incentives for Agricultural Extension: A Review of Privatized Extension in Practice." ODI Agricultural Research and Extension Network Paper 132. London: Overseas Development Institute (ODI).
- DNEA (Direcção Nacional de Extensão Agrária). 2005. "Programa Nacional de Extensão Agrária (PRONEA)." Maputo: Ministry of Agriculture. www.IIAM.gov.mz
- . 2007. *Extension Master Plan 2007–2016*. Maputo: Ministry of Agriculture. http://www.iiam.gov.mz/images/stories/pdf_files/%20plano_eg.pdf.
- ECDPM (European Centre for Development Policy Management). 2008. "Capacity Change and Performance: Insights and Implications for Development Cooperation." Policy Management Brief 21. Maastricht: ECPDM.
- FAO, KARI, and ILRI (Food and Agriculture Organization of the United Nations, Kenya Agricultural Research Institute, and International Livestock Research Institute). 2003. Farmer field schools: The Kenyan experience. Report of the FFS Stakeholders' Forum, March 27, 2003, Nairobi, Kenya.
- Gêmo, H., C.K. Eicher, and S. Teclerariam. 2005. *Mozambique's Experience in Building a National Extension System*. East Lansing: Michigan State University.
- Heemskerk, W., and B. Wennink. 2004. "Building Social Capital for Agricultural Innovation: Experiences with Farmer Groups in Sub-Saharan Africa." KIT Bulletin 368. Amsterdam: Royal Tropical Institute.
- . 2005. "Stakeholder-driven Funding Mechanisms for Agricultural Innovation: Case Studies from Sub-Saharan Africa." KIT Bulletin 373. Amsterdam: Royal Tropical Institute.
- Heemskerk, W., S. Nederlof, and B. Wennink. 2008. "Outsourcing Agricultural Advisory Services: Enhancing Rural Innovation in Sub-Saharan Africa." KIT Bulletin 380. Amsterdam: Royal Tropical Institute.
- Klerkx L., A. Hall, and C. Leeuwis. 2010. "Strengthening Agricultural Innovation Capacity: Are Innovation Brokers the Answer?" *International Journal of Agricultural Resources, Governance, and Ecology* 8(5–6): 409–438.
- Nederlof, E.S., B. Wennink, and W. Heemskerk. 2008. Access to agricultural services. Background paper for the IFAD *Rural Poverty Report 2010*. <http://www.ifad.org/rural/rpr2010/background/3.pdf>
- Spielman, D.J., K. Davis, M. Negash, and G. Ayele. 2011. Rural innovation systems and networks: findings from a

Thematic Note I

AFAAS–FARA (African Forum for Agricultural Advisory Services and Forum for Agricultural Research in Africa) and Neuchatel Initiative. 2009. Capacity development for market-oriented agricultural advisory services in

- study of Ethiopian smallholders. *Agriculture and Human Values* 28 (2): 195–212.
- Swanson, B., and R. Rajalahti. 2010. “Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems.” Agricultural and Rural Development Discussion Paper No. 44. Washington, DC: World Bank.
- Wennink, B., and W. Heemskerk (eds.). 2006. “Farmers’ Organizations and Agricultural Innovation. Case Studies from Benin, Rwanda, and Tanzania.” KIT Bulletin 374. Amsterdam: Royal Tropical Institute.
- Wennink, B., E.S. Nederlof, and W. Heemskerk (eds.). 2007. “Access of the Poor to Agricultural Services: The Role of Farmers’ Organizations in Social Inclusion.” KIT Bulletin 376. Amsterdam: Royal Tropical Institute.
- Thematic Note 2**
- AFAAS. 2011. <http://www.afaas-africa.org>.
- Benin, S., E. Nkonya, G. Okecho, J. Pender, S. Nahdy, S. Mugarura, and G. Kayobyo. 2007. “Assessing the Impact of the National Agricultural Advisory Services (NAADS) in the Uganda Rural Livelihoods.” IFPRI Discussion Paper No. 724. Washington, DC: International Food Policy Research Institute (IFPRI).
- Chipeta, S., I. Christoplos, and E. Katz. 2008. *Common Framework on Market-Oriented Agricultural Advisory Services*. Lindau: Agridea for Neuchâtel Group.
- Christoplos, I. 2010. *Mobilizing the Potential of Rural and Agricultural Extension*. Rome: Food and Agriculture Organization of the United Nations (FAO) and the Global Forum for Rural Advisory Services (GFRAS).
- DFID (UK Department for International Development) and SDC (Swiss Agency for Development and Cooperation). 2008. *Perspectives on The Making Markets Work for the Poor (M4P) Approach*. Bern: SDC.
- Dixie, G. 2005. *Horticultural Marketing*. Marketing Extension Guide 5. Rome: Food and Agriculture Organization of the United Nations (FAO).
- DNEA (Direção Nacional de Extensão Agrária). 2007. *Extension Master Plan 2007–2016*. Maputo: Ministry of Agriculture. http://www.iiam.gov.mz/images/stories/pdf_files/%20plano_eg.pdf, accessed July 2011.
- Friis-Hansen, E., and C. Aben. 2010. “Rise and Fall of Private Agricultural Service Providers in Sorti District Uganda.” Presentation at the GFRAS Conference, Chile, http://www.rimisp.org/FCKeditor/UserFiles/File/documentos/docs/proyecto261/16.%20Rise%20and%20Fall%20of%20PSP2_Esbern%20Friis.pdf, accessed July 2011.
- Hanlon, J., and T. Smart. 2008. *Do Bicycles Equal Development in Mozambique?* Rochester: James Currey.
- Heemskerk, W., S. Nederlof, and B. Wennink. 2008. “Outsourcing Agricultural Advisory Services: Enhancing Rural Innovation in Sub-Saharan Africa.” KIT Bulletin No. 380. Amsterdam: Royal Tropical Institute (KIT).
- Hoffmann, V., A. Christinck, and M. Lemma (eds.). 2009. *Examples and Background Material*. Volume 2 of *Handbook: Rural Extension*. Weikersheim: Margraf.
- Hoffmann, V., M. Gerster-Bentaya, A. Christinck, and M. Lemma (eds.) 2009. *Basic Issues and Concepts*. Volume 1 of *Handbook: Rural Extension*. Weikersheim: Margraf.
- Jaleta, M., B. Gebremedhin, and D. Hoekstra. 2009. “Smallholder Commercialization: Processes, Determinants, and Impact.” Discussion Paper No. 18. Nairobi: International Livestock Research Institute (ILRI).
- Kahan, D.G. 2007. “Farm Management Extension Services: A Review of Global Experience.” Agricultural Management, Marketing, and Finance Occasional Paper No. 21. Rome: Food and Agriculture Organization (FAO).
- KIT (Royal Tropical Institute). 2011 (forthcoming). “Gender in Value Chains.” www.kit.nl.
- KIT (Royal Tropical Institute), Faïda Mali, and IIRR (International Institute of Rural Reconstruction). 2006. “Chain Empowerment: Supporting African Farmers to Develop Markets.” Amsterdam, Arusha, and Nairobi.
- KIT (Royal Tropical Institute) and IIRR (International Institute of Rural Reconstruction). 2008. “Trading Up: Building Cooperation between Farmers and Traders in Africa.” Amsterdam and Nairobi.
- . 2010. “Value Chain Finance: Beyond Microfinance for Rural Entrepreneurs.” Amsterdam and Nairobi.
- . 2012. *Gender in Value Chains*. Amsterdam, The Netherlands: Royal Tropical Institute; Arnhem, The Netherlands: AgriProFocus, and Nairobi, Kenya: International Institute of Rural Reconstruction (in press).
- Kristjanson, P., R. Reid, N. Dickson, W. Clark, D. Romney, R. Puskur, S. MacMillan, and D. Grace. 2009. “Linking Research Knowledge with Action: Lessons from Sustainable Development Livestock Projects. PNAS, http://www.pnas.org/content/suppl/2009/03/16/0807414106.DC_Supplemental/Appendix_PDF.pdf, accessed July 2011.
- Lamers, J.P.A., P.R. Feil, N. Bayverdiyeva, Y. Guliyeva, and F. Djafarov. 2008. “From Kolchoz Systems to Fee-based Private Agricultural Extension: Achievements with a Client-oriented Training and Advisory Concept as Support for Private Farming in Azerbaijan.” *Journal of Applied Biosciences* 8(1):262–71.
- Malindi, G. 2011. “Agricultural Advisory Services under Value Chain Agriculture. A Case from Malawi.” Presented at AFAAS conference, Accra, April 12, 2011, www.afaas-africa.org.

- NAADS (National Agricultural Advisory Services). 2010. *Agribusiness Development*. Unpublished working paper, Kampala.
- Odada, E.O., R.J. Scholes, K.J. Noone, C. Mbow, and W.O. Ochola (eds.). 2008. *A Strategy for Global Environmental Change Research in Africa: Science Plan and Implementation Strategy*. Stockholm: International Geosphere-Biosphere Programme (IGBP) Secretariat.
- Pingali, P.L., Y. Khwaja, and M. Meijer. 2005. "Commercializing Small Farmers: Reducing Transaction Costs." FAO/ESA Working Paper No. 05-08. Rome: Food and Agriculture Organization of the United Nations (FAO).
- Pingali, P.L., and M.W. Rosegrant. 1995. "Agricultural Commercialization and Diversification: Process and Policies." *Food Policy* 20(3):171–85.
- Poitevin, B., and S. Hossain. 2006. "Marketing Extension: A Powerful Process in 6 Steps." Dhaka: Livelihoods, Empowerment and Agroforestry (LEAF) Project, Inter-cooperation, and Swiss Agency for Development and Cooperation (SDC).
- Pyburn, R., F. van der Lee, and M. ter Heegde (2011, forthcoming). "Green Services: Getting Payment for Smallholder Contributions to NRM." Working Paper. Amsterdam: Royal Tropical Institute (KIT).
- Roduner, R. 2007. "Donor Interventions in Value Chain Development." Working Paper. Community of Practice on Value Chains in Rural Development. Berne: Swiss Agency for Development and Cooperation (SDC).
- Spielman, D.J., J. Ekboir, K. Davis, and C.M.O. Ochieng. 2008. "An Innovation Systems Perspective on Strengthening Agricultural Education and Training in Sub-Saharan Africa." *Agricultural Systems* 98:1–9.
- Swanson, B., and R. Rajalahti. 2010. "Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems." Agricultural and Rural Development Discussion Paper No. 44. Washington, DC: World Bank.
- UNCDF (United Nations Capital Development Fund). 2009. "The State of Local Economic Development in Mozambique." Prepared by P. Penninkhoff for United Nations Capital Development Fund. Development Policy and Practice. Amsterdam: Royal Tropical Institute (KIT).
- UNDP (United Nations Development Programme). 2004a. *Business Development Services How to Guide*. Bratislava: UNDP Regional Centre.
- . 2004b. *Unleashing Entrepreneurship; Making Business Work for the Poor*. Commission on the Private Sector and Development, Report to the Secretary-General of the United Nations. New York.
- USAID (United States Agency for International Development). 2009. "Building Partnerships on Higher Agricultural Education and Hatching Agribusiness Incubator in Mali." Washington, DC.
- van Weperen, W. 2011. "Market-Oriented Advisory Services Approaches and Processes: Toward a Guide for Piloting MOAAS in AAS Systems." Presented at AFAAS conference, Accra, April 12, www.afaas-africa.org.
- Webber, C.M., and P. Labaste. 2010. "Building Competitiveness in Africa's Agriculture: A Guide to Value Chain Concepts and Applications." Washington, DC: World Bank.
- Wennink, B., E.S. Nederlof, and W. Heemskerk (eds.). 2007. "Access of the Poor to Agricultural Services: The Role of Farmers' Organizations in Social Inclusion." KIT Bulletin No. 376. Amsterdam: Royal Tropical Institute (KIT).
- Wilk, E. de O., and J.E. Fensterseifer. 2003. "Towards a National Agribusiness System: A Conceptual Framework." *International Food and Agribusiness Management Review* 6(2):99–110.
- World Bank. 2006. "Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems." Washington, DC.
- . 2010. "Designing and Implementing Agricultural Innovation Funds: Lessons from Competitive Research and Matching Grant Projects." Report No. 54857-GLB. Washington, DC.
- . 2011. Rural Alliances in Bolivia. A World Bank Case. <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/LACEXT/BOLIVIAEXTN/0,,contentMDK:22781102~pagePK:1497618~piPK:217854~theSitePK:322279,00.html>, accessed July 2011.

Thematic Note 3

- Alex, G., W. Zijp, and D. Byerlee. 2002. "Rural Extension and Advisory Services: New Directions." Rural Strategy Background Paper No. 9. Washington, DC: The World Bank.
- BRAC (Bangladesh Rural Advancement Committee). 2010. Program information from www.brac.net, accessed July 2011.
- Bhamoria, V. 2004. Tribal rehabilitation for livelihood enhancement: Experience of DHRUVA. Document produced for the IWMI-Tata Water Policy Programme, Anand.
- DHRUVA (Dharampur Uththan Vahini). 2010. Program information from www.dhruva.org.in, accessed July 2011.
- Echeverria, R. 2003. "Twenty Years of Reforming Extension in Latin America: Are We There Yet?" Presented at the Regional Workshop on Operationalising Reforms in Agricultural Extension in South Asia, New Delhi, May 6–8.

- Farrington, J., I. Christoplos, A.D. Kidd, and M. Beckman. 2002. "Extension, Poverty, and Vulnerability: The Scope for Policy Reform: Final Report of a Study for the Neuchâtel Initiative." Working Paper No. 155. London: Overseas Development Institute (ODI).
- Neuchâtel Group. 2002. "Common Framework on Financing Agricultural and Rural Extension." Lindau: Swiss Centre for Agricultural Extension and Rural Development.
- Rivera, W.M., M.K. Quamar, and L.V. Crowder. 2001. "Agricultural and Rural Extension World Wide: Options for Institutional Reform in the Developing Countries." Rome: Extension, Education and Communication Service, Research, Extension and Training Division, Sustainable Development Department, Food and Agriculture Organization of the United Nations (FAO).
- Sulaiman, R.V., and A.J. Hall. 2002. "An Innovation System Perspective on the Restructuring of Agricultural Extension: Evidence from India." *Outlook on Agriculture* 30(4):235–43.
- . 2004a. "Towards Extension-Plus: Opportunities and Challenges." Policy Brief No. 17. New Delhi: National Centre for Agricultural Economics and Policy Research (NCAP).
- . 2004b. "India: The Emergence of Extension-Plus: Future for Extension beyond Technology Transfer?" In W.M. Rivers and G. Alex (eds.), *Extension Reform for Rural Development*. Vol. 1. Washington, DC: World Bank. Pp. 19–29.
- . 2005. "Extension Policy at the National Level in Asia." *Plant Production Science* 8(3):308–19.
- Swanson, B.E. 2006. "The Changing Role of Agricultural Extension in a Global Economy." *Journal of International Agricultural and Extension Education* 13(3):5–18.
- Vaswani, L.K., V. Venkatakrishnan, R. Upadhyay, and J. Talati. 2003. "Agricultural Market Linkages: Evaluating and Evolving a Conceptual Framework in Indian Context." NABARD Occasional Paper 28. Mumbai: National Bank for Agriculture and Rural Development (NABARD).
- VFPCCK. 2009 "Progress Report, 2008-09." Vegetable and Fruit Promotion Council Kerala (VFPCCK), Kochi.
- XLRI (Xavier Labour Research Institute). 1999. "Report of the Impact Evaluation of Kerala Horticultural Development Programme." Bhubaneswar: Xavier Labour Research Institute.
- Anandajayasekeram, P., R. Puskur, and E. Zerfu. 2010. "Applying Innovation System Concept in Agricultural Research for Development: A Learning Module." Nairobi: International Livestock Research Institute (ILRI).
- Berdegú, J., and G. Escobar. 2002. "Rural Diversity, Agricultural Innovation Policies, and Poverty Reduction." Agricultural Research and Extension Network Paper No. 122. London: Overseas Development Institute (ODI).
- Burt, R. S. 2004. "Structural holes and good ideas." *American Journal of Sociology* 110(2):349–99.
- Devaux, A., D. Horton, C. Velasco, G. Thiele, G. Lopez, T. Bernet, I. Reinoso, and M. Ordinola. 2009. "Collective Action for Market Chain Innovation in the Andes." *Food Policy* 34(1):31–38.
- Devaux, A., J. Andrade-Piedra, D. Horton, M. Ordinola, G. Thiele, A. Thomann, and C. Velasco. 2010. "Brokering Innovation for Sustainable Development: The Papa Andina Case." ILAC Working Paper No. 12. Rome: Institutional Learning and Change (ILAC) Initiative.
- Gêmo, H.R. 2006. *Recursos humanos na extensão agrária pública em Mocambique (1987–2006). Estudos sobre investigação e extensão agrária*. Vol. 1. Maputo: Ministry of Agriculture.
- Gildemacher, P.R., W. Kaguongo, O. Ortiz, A. Tesfaye, G. Woldegiorgis, W.W. Wagoire, M. Wakahiu, C. Leeuwis, and P.C. Struik. 2009. "Improving Potato Production in Kenya, Uganda, and Ethiopia: A System Diagnosis." *Potato Research* 52(2):173–205.
- Granovetter, M. 1985. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91(3):481–510.
- Gupta, A.K., R. Sinha, D. Koradia, R. Patel, M. Parmar, P. Rohit, H. Patel, K. Patel, V.S. Chand, T.J. James, A. Chandan, M. Patel, T.N. Prakash, P. Vivekanandan, and other members of Honey Bee Network. 2003. "Mobilizing Grassroots' Technological Innovations and Traditional Knowledge, Values, and Institutions: Articulating Social and Ethical Capital." *Futures* 35(9):975–87.
- Hall, A., J. Clark, and G.C. Naik. 2007 "Technology Supply Chain or Innovation Capacity? Contrasting Experiences of Promoting Small-scale Irrigation Technology in South Asia." UNU-MERIT Working Paper No. 2007-014. Maastricht: United Nations University (UNU) and Maastricht Economic and Social Research and Training Centre on Innovation and Technology (MERIT).
- Hartwich, F., V. Gottret, S. Babu, and J. Tola. 2007. "Building Public-private Partnerships for Agricultural Innovation in Latin America." IFPRI Discussion Paper No. 00699. Washington, DC: International Food Policy Research Institute (IFPRI).

Thematic Note 4

Alex, G., W. Zijp, and D. Byerlee. 2002. "Rural Extension and Advisory Services: New Directions." Rural Development Strategy Background Paper No. 9). Washington, DC: World Bank.

- Howells, J. 2006. "Intermediation and the Role of Intermediaries in Innovation." *Research Policy* 35(5):715–28.
- Kibwika, P., A.E.J. Wals, and M.G. Nassuna-Musoke. 2009. "Competence Challenges of Demand-led Agricultural Research and Extension in Uganda." *Journal of Agricultural Education and Extension* 15(1):5–19.
- Klerkx, L., N. Aarts, and C. Leeuwis. 2010. "Adaptive Management in Agricultural Innovation Systems: The Interactions between Innovation Networks and Their Environment." *Agricultural Systems* 103(6):390–400.
- Klerkx, L., A. Hall, and C. Leeuwis. 2009. "Strengthening Agricultural Innovation Capacity: Are Innovation Brokers the Answer?" *International Journal of Agricultural Resources, Governance, and Ecology* 8(5/6):409–38.
- Klerkx, L., and C. Leeuwis. 2008. "Matching Demand and Supply in the Agricultural Knowledge Infrastructure: Experiences with Innovation Intermediaries." *Food Policy* 33(3):260–76.
- . 2009. "The Emergence and Embedding of Innovation Brokers at Different Innovation System Levels: Insights from the Dutch Agricultural Sector." *Technological Forecasting and Social Change* 76(6):849–60.
- Kristjanson, P., R.S. Reid, N. Dickson, W.C. Clark, D. Romney, R. Puskur, S. MacMillan, and D. Grace. 2009. "Linking International Agricultural Research Knowledge with Action for Sustainable Development." *Proceedings of the National Academy of Sciences* 9(13):5047–52.
- Murthy, R. 2010. "India's Rural Inventors Drive Change." *Asia Times Online*, January 29, 2010, http://www.atimes.com/atimes/South_Asia/LA29Df03.html, accessed July 2011.
- Obstfeld, D. 2005. "Social Networks, the Tertius Iungens Orientation, and Involvement in Innovation." *Administrative Science Quarterly* 50(1):100–30.
- Pant, L.P., and H. Hambly-Odame. 2006. "Multi-stakeholder Deliberation on Dialectical Divides: An Operational Principle of the Systems of Innovation." *Knowledge Management for Development Journal* 2(3):60–74.
- Rivera, W., and R. Sulaiman, V. 2009. "Extension: Object of Reform, Engine for Innovation." *Outlook on Agriculture* 38(3):267–73.
- Smits, R., and S. Kuhlmann. 2004. "The Rise of Systemic Instruments in Innovation Policy." *International Journal of Foresight and Innovation Policy* 1(1/2):4–30.
- Spielman, D.J., J. Ekboir, and K. Davis. 2009. "The Art and Science of Innovation Systems Inquiry: Applications to Sub-Saharan African Agriculture." *Technology in Society* 31(4):399–405.
- World Bank. 2006. "Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems." Washington, DC.
- Innovative Activity Profile 1**
- IFDC (International Fertilizer Development Center). 2011. "Improved Livelihood for Sidr-Affected Rice Farmers (ILSAFARM) Project." Final Report, submitted to the USAID-Bangladesh. Muscle Shoals.
- Thompson, T.P. 2003. A perspective on the IFDC strategy for agribusiness development. Unpublished paper, International Fertilizer Development Center (IFDC), Muscle Shoals.
- . 2005. "Agricultural Investment Note: Promoting Private Sector Fertilizer Markets." Washington, DC: World Bank.
- USAID (United States Agency for International Development). 1996. "Privatizing Fertilizer Distribution: Bangladesh Case Study." USAID Evaluation Highlights No. 54. Washington, DC. http://pdf.usaid.gov/pdf_docs/PNABS524.pdf, accessed July 2011.
- Innovative Activity Profile 2**
- These sources can be accessed through <http://www.info-bridge.org/ffsnet/>; if not uploaded a single copy can be obtained from support@farmerfieldschool.net
- Braun, A. 2006. Farmer Field School networks in Western Kenya: Evolution of activities and farmers' priorities. Unpublished report, FAO, Rome.
- Braun, A., J.R. Okoth, H. Khaamala, and G.S. Khisa, 2007. "Building FFS Networks in East Africa." *LEISA Magazine* 23–1:18–19.
- Braun, A.R., and D. Duveskog. 2009. The Farmer Field School approach: History, global assessment, and success stories. Unpublished report for the IFAD *Rural Poverty Report 2009*, International Fund for Agricultural Development (IFAD), Rome.
- Davis, K., E. Nkonya, E. Kato, D. A. Mekonnen, M. Odo, R. Miiro, and J. Nkuba. 2010. "Impact of Farmer Field Schools on Agricultural Productivity and Poverty in East Africa." Discussion Paper No. 00992. Washington, DC: International Food Policy Research Institute (IFPRI). http://www.ifpri.org/sites/default/files/publications/ifpri_dp00992.pdf, accessed July 2011.
- FAO (Food and Agriculture Organization), 2006. Farmer Field School networks operational manual. Unpublished, FAO–Uganda, Kampala.
- Gallagher, K., 2001. Self-financed field schools: Helping farmers go back to school in IPM/IPPM. Unpublished, <http://www.share4dev.info/ffsnet/documents/3201.pdf>, accessed July 2011.
- . 2002. "Self-financing Access to New Technologies: East African Farmer Innovations." SDI 7-23/1. SDI/UGF

- World Summit 2002. Share4Dev, <http://www.share4dev.info/kb/documents/3202.pdf>, accessed July 2011.
- Khisa, G., 2006. First Regional Meeting Report: Expansion of Farmer Field School Programme in Eastern and Southern Africa. Unpublished.
- Khisa, G., and E. Heinemann. 2005. "Farmer Empowerment through Farmer Field Schools." In "Bright Spots Demonstrate Community Successes in African Agriculture," edited by F.W.T. Penning de Vries. Working Paper No. 102. Colombo: International Water Management Institute (IWMI). Pp. 71–83.
- KIT (Royal Tropical Institute), Faida Mali, and IIRR (International Institute of Rural Reconstruction). 2006. "Chain Empowerment: Supporting African Farmers to Develop Markets." Amsterdam, Arusha, and Nairobi.
- Okoth, J.R., G. Khisa, and J. Thomas, 2002. "Towards a Holistic Farmer Field School Approach for East Africa." *LEISA Magazine* 18–3.
- . 2003. "Towards Self-financed Farmer Field Schools." *LEISA Magazine* 19–1: 28–29.
- Okoth, J., A.R. Braun, R. Delve, H. Khamaala, G. Khisa, and J. Thomas. 2006. "The Emergence of Farmer Field Schools Networks in Eastern Africa." Paper presented at the CAPRI Research Workshop on Collective Action and Market Access for Smallholders, 2–5 October, Cali.
- ization of the United Nations (FAO) and the Global Forum for Rural Advisory Services (GFRAS).
- INCAGRO (Innovación y Competitividad para el Agro Peruano). <http://www.incagro.gob.pe/WebIncagro/inicio.do>, accessed May 2010.
- Ministry of Agriculture. 2009. "Evaluación de impacto del INCAGRO: Proyecto de Investigación y Extensión Agrícola (PIEA)." Lima: Ministry of Agriculture.
- Ortiz, O. 2006. "Evolution of Agricultural Extension and Information Dissemination in Peru: An Historical Perspective Focusing on Potato-related Pest Control." *Agriculture and Human Values* 23(4):477–89.
- Swanson, B. 2008. *Global Review of Good Agricultural Extension and Advisory Service Practices*. Rome: Food and Agriculture Organization of the United Nations (FAO).
- World Bank. 2005. "Implementation Completion Report on a Loan in the Amount of US\$ 9.6 Million to the Republic of Peru for an Agricultural Research and Extension Project." Washington, DC.
- . 2006. "Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems." Washington, DC.
- . 2009. "Project Performance Assessment Report: Republic of Peru, Agriculture Research and Extension Project." Washington, DC.

Innovative Activity Profile 3

- Barrantes, R., C. Trivelli, R. Morales S, and J.J. Miranda. 2004. "Análisis económico, social y financiero de la inversiones en innovación y evaluación ex ante de los retornos del proyecto INCAGRO." Lima: Innovación y Competitividad para el Agro Peruano (INCAGRO).
- Benites, J.R., and H. Wiener. 2008. "INCAGRO: Converting ideas into values." Lima: Innovación y Competitividad para el Agro Peruano (INCAGRO).
- Christoplos, I. 2010. *Mobilizing the Potential of Rural and Agricultural Extension*. Rome: Food and Agriculture Orga-

Innovative Activity Profile 4

- Vijay Mahajan, and K. Vasumathi. 2010. "Combining Extension Services with Agricultural Credit: The Experience of BASIX India." IFPRI Brief. Washington, DC: International Food Policy Research Institute (IFPRI). http://www.ifpri.org/sites/default/files/publications/focus_18_13.pdf, accessed March 2011.
- Mishra, B.S. 2008. "Contract Farming for Potato: An Attempt to Include Poor Farmers in the Value Chain." *Enterprise Development and Microfinance* 19 (4): 331–43.

