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# Volume 2. Privatization of Extension Systems

## *Case Studies of International Initiatives*

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- Volume 1. Decentralized Systems: Case Studies of International Initiatives
- Volume 3. Demand-Driven Approaches to Agriculture Extension: Case Studies of International Initiatives
- Volume 4. Revitalization Within Public Sector Services: Case Studies of International Initiatives
- Volume 5. National Strategy and Reform Process: Case Studies of International Initiatives

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# Foreword

Public agricultural extension services around the world are being forced to adapt to new funding constraints and a changing agricultural sector. The global perspective on extension is no longer that of a unified public sector service, but of a multi-institutional network of knowledge and information support for rural people. This present compilation of case studies views extension within the context of a wide rural development agenda. With emphasis on agriculture and increasingly complex market, social, and environmental demands on rural production systems, this view of extension recognizes the need for a sophisticated and differentiated set of services. From the policy standpoint it implies that governments need to act to redefine extension and implement a coherent extension policy to advance a pluralistic system of extension providers. The compilation highlights the widening body of experience worldwide with such reforms as decentralization, privatization, demand-driven approaches and other national strategies, including revitalization efforts within public sector services.

The case studies originated from an international workshop on "Extension and Rural Development", sponsored by the World Bank and the U.S. Agency for International Development, in collaboration with the Neuchâtel Group, and held in November 2002 in the IFPRI headquarters in Washington, DC. The original workshop brought together more than fifty professionals, including many field personnel and project implementers, with an opportunity to discuss and identify commonalities in the extension reforms and program approaches developed around the world. The workshop broached a host of topics, but the main discussion centered on the reform of extension systems to meet new challenges and promote sustainable livelihoods for the rural poor; new approaches to delivery of pro-poor extension and information services for rural development, including new ways of linking demand and delivery; the role of the public sector regarding pro-poor institutional; and the policy frameworks that have fostered successful extension approaches and thus have established future priorities for extension investment.

USAID through the Livestock Collaborative Research Support Program headquartered at the University of Davis in California supported a set of case studies to inform discussion in the workshop. These and additional case studies and overviews of key topics by extension specialists are presented herein to provide insights into extension reforms currently underway. We believe that policymakers and extension practitioners and those in related disciplines will find this experience relevant to the design of future reforms. The wealth of experience existing in the area of extension reform and innovation enriches the knowledge base for promoting the rural institutional changes needed for sustainable rural development.

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# Preface

The idea for this compilation of case studies on extension and rural development grew out of the process of organizing the international workshop on "Extension and Rural Development," sponsored by the World Bank and the U.S. Agency for International Development, in collaboration with the Neuchâtel Group. Held in November 2002, the workshop provided more than fifty professionals, including many field personnel and project implementers, with an opportunity to discuss and identify commonalities in the extension reforms and program approaches developed around the world. The workshop was organized around three main topics: (a) the reform of extension systems to meet new challenges and promote sustainable livelihoods for the rural poor; (b) new approaches to delivery of pro-poor extension and information services for rural development, including especially new ways of linking demand and delivery; and (c) the role of the public sector, with emphasis on pro-poor institutional and policy frameworks that have fostered successful extension implementations and new approaches and thus established future priorities for extension investment.

In addition to the case studies available from the workshop, the editors subsequently solicited input from additional specialists who were knowledgeable about current extension developments in distinct countries and programs. The object was to bring together case studies on major extension reforms that both policymakers and professionals in extension and related disciplines would find of interest and relevant to the design of future reforms. There exists a wealth of experience in the extension reforms and innovations. Reforms seem to be underway in nearly all countries, such that the editors' problem was more of what case and how much detail to include rather than where to find potentially informative case studies.

The compilation highlights the fact that the emerging view of extension is no longer simply that of a unified service, but of a network of knowledge and information support for rural people. One of the propositions put forward throughout the compilation is that extension needs to be viewed within a wider rural development agenda; and that the increasingly complex market, social, and environmental demands on rural production systems requires a more sophisticated and differentiated set of services. From the policy standpoint, this implies that governments need to act in defining and implementing a coherent extension policy for a pluralistic system.

Because rural knowledge and information needs are diverse, there are benefits from having a range of providers to deliver advice, technology innovations, and facilitation services. Governments in many cases are moving to encourage pluralistic extension systems, but this is not universally the case. Such a strategy requires new mechanisms for financing or co-financing public good services and most importantly requires mechanisms (i.e., training, technical support, mass media, monitoring and evaluation) for enhancing the quality of services provided by diverse institutions. Pluralistic strategies often entail a change in roles and can run into active opposition of suspicious public agencies. In pursuing such a strategy, government requires a better understanding of existing extension services, and most cases suggested that the design of an extension policy supportive of a pluralistic system should begin with an inventory of the actors as in who provides what to whom, and an assessment of the quality of the services rendered before deciding on any reform.

The term *extension* is used broadly in many cases throughout, and the reader must be careful to ascertain how each case study author defines the term. Individual writers may focus on either agricultural or rural

extension although, throughout, emphasis tends to be on extension as a vehicle for agricultural development rather than on the broader agenda of rural development. The compilation is intended to present the widening body of experience worldwide with reforms such as decentralization, privatization, demand-driven approaches, and other national strategies including revitalization efforts within public sector services.

### The Case Study Outline

Case study writers were asked to consider the following questions. Why was change necessary or desirable? What situation or events led up to the reform, innovation or development that constitutes the core of your case study? What were the innovations or reforms introduced? How did the reform, innovation or development evolve? Who delivers the services being provided? Who pays for the services being provided? Who administers the services being provided? What specific services are provided? What is delivered? What type of information? How are the services provided? What methods are used ? Do we use face-to-face, media, or electronics? What have been the results so far? In general, does the reform and innovation affect rural development and poverty alleviation? What, if any, are the impacts on the socio-economic situation of the service recipients? How do policymakers and stakeholders view the extension services?

Additionally, the case studies were intended to highlight the impact of extension reforms, the likelihood of their sustainability and their replicability. In many cases, evidence of the impact of reforms is limited because of their newness; and consequently, the case studies differ in their treatment of the issues. Ultimately, impact, sustainability, and replicability are the key issues of interest and define the thrust of the studies.

# Acknowledgments

The editors are grateful to numerous colleagues at the World Bank, the U.S. Agency for International Development, the Neuchâtel Group, and the many distinct institutions represented by participants at the November 2002 International Workshop in Washington, DC, as well as those contributors to the compilation who were not at the Workshop.

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We are obliged to the many contributors to the volume. They are in alphabetical order: G. Aben, M. Ameu, Kwame Amezah, Jacqueline Ashby, Malin Beckman, Jim Bingen, Yahia Bouarfa, John Cary, Santiago Cayota, Noel Chabeauf, Sanne Chipeta, S. Chipika, Ian Christoplos, Artur Cristovão, Nie Chuang, Mike Connolly, Maximiliano Cox, Jochen Currle, Andrew P. Davidson, Edmond Dembele, Wilfredo Diaz, Vernon Douglas, Boru Douthewaite, Kamal Dow, Carl K. Eicher, Martin J. Eweg, Guy Faure, Gershon Feder, Gerd Fleishcher, E. Friis-Hansen, Chris Garforth, Daniel J. Gustafson, Andy Hall, James C. Hanson, M. Hassanullah, Kirsten von der Heiden, Johann Hesse, Volker Hoffmann, Subrimaniam Janakiram, Andrew Kidd, Paul Kleene, Hanna Kreen, Jorge Lainez, Clive Lightfoot, Eduardo Lindarte, Ülar Loolaid, George R. McDowell, F. Maganga, Rinku Murgai, Uwe Jens Nagel, Silim Nahdy, Hope Neighbor, Gana Pati Ojha, J.R. Okoth, Hugo Ortega, Michelle E. Owens, Fernando Pereira, Norman Bentley Piccioni, Donald L. Plucknett, Carlos Arturo Quiros, Jaime Quizon, José Ignacio Roa, Miguel Saviroff, Heribert Schmitz, Fabio Maria Santucci, Joseph Seepersad, Daniel Sellen, Brent M. Simpson, James Smyle, C. Sokoni, Rasheed Sulaiman V, Burton Swanson, Tek Bahadur Thapa, Josef Toledano, Hermann Waibel, Gerd Walter-Echols, Joshua Walton, Trevor J. Webb, Feng Yan, and Jean Sibiri Zoundi. A note on the author(s) of the case studies appears at the end of each chapter.

We extend our sincere thanks to all those who demonstrated an interest and a willingness in assisting with the long maturation of this volume.

*William Rivera and Gary Alex*

# Private Extension and Public-Private Partnerships: Privatized, Contracted, and Commercialized Approaches

Michael Connolly

Twelve case studies are described where privatization has been a feature of national or regional reform processes over the past 10-15 years. Cases come from Chile, Ecuador, Estonia, Germany-Brandenburg, Honduras, Mali, Niger, Pakistan, South Africa, Venezuela, Uganda, and the United Kingdom.

What is clear from the experiences across these countries is that privatization, in the context of national reform of rural extension services systems, is an important strategic component of these complex and pluralistic processes rather than an ideological mantra imbuing the overall endeavor. Also emerging from the studies and other related international experience is the fundamental difference in both principles and policies between reform processes involving the privatization of agricultural *enterprises* and those involving the privatization of rural *services*. Privatization of enterprises involves the *ceding of total or substantial ownership and operational control* from the government to the private sector whereas privatization of services involves the development of *new partnerships and associated capacities* between government agencies and non-governmental and private sector actors.

In services reform, governments through public sector agencies retain overall strategic responsibility for services' policy and coordination as part of nationally inclusive processes where all key stakeholders articulate their demands openly and actively to government and service providers; private and non-governmental actors agree or contract to provide services for specific farming or client groups either through public sector funding or through charges or cost-sharing arrangements. Unlike the privatization of enterprises where the transition process can often be driven relatively quickly (18-24 months), reform processes for extension services have been much more complex and time-consuming arising from the need for fundamental and transformational changes in the roles, responsibilities, and relationships of all actors.

Privatization processes, like the important parallel processes to reform the roles and capacities of the public sector and its agencies, are long-term ventures (often 5-10 years) for all actors and investors. To have reasonable probabilities of success they have to be conceived and implemented in *process and program paradigms* and not in short-term project modes that seek prematurely defined destinations and results before actors had been able to complete their journeys of discovery and capacity building. A central lesson from the case studies is that privatization policies alone, no matter how worthy, cannot be translated into effective practice without well-conceived and designed systemic change processes (recognizing and fostering holism and interdependence among all actors) and contingent programs for local human capacity development.

As is very evident from the case studies, there are no models or external prescriptions that are entirely appropriate or applicable to the particular needs of individual countries. Each case is different and the most crucial factor in assuring progress in services reform, including privatization measures, is the preparedness of all actors to engage in open experiential learning processes and foster the self-confidence and local leadership necessary for their own lessons and capacities to bring about the outcomes and ends

they require. Relevant experiences from other countries or regions have to carefully screened, tested, and adapted under local conditions.

Privatization processes usually involve deep and substantial change for public service ministries, their extension agencies or departments, and private and nongovernmental actors. Yet comprehensive change management programs to prepare actors for the complex agendas and challenges of reform have been too often ignored or superficially designed and planned. This has often led to piecemeal or disjointed efforts, a slow pace of institutional and inter-institutional learning, and even outright failure in fostering viable partnerships between the public and private sectors in renewing and improving services provision.

An early innovator in use of private sector extension service providers was **Chile**, with its introduction in 1978 of the Technical-Entrepreneurial Assistance (ATE) program of grants for delivery of extension services. The Chile case illustrates how flexible these programs can be, allowing them to be adapted to different government policy objectives and in response to changing conditions and lessons learned in implementation. Although the program has operated under a strategy of gradual shift of financing to users of extension services, this has been difficult to achieve in practice. Even after 25 years, Chile's privatized extension services face complex problems and are not fully "owned" by clients. Still, there appears little interest in return to direct government delivery of services. **Ecuador** in its recent attempt to establish a similar program has shown how effective private service delivery can be, but how fragile such new reforms are and how easily progress can be lost.

Institutional capacities in the public, nongovernmental, and private sectors are a crucial preliminary focus for change management processes. Some early privatization projects and programs were predicated on assigning relatively immediate new roles to both public and private sector actors – often in the absence of institutional appraisals or capacity assessments, let alone any focused initial orientation or development of capacities helping them with their new responsibilities. The case study from **Honduras** illustrates graphically the scope, dimensions and costs of the challenge facing public sector agencies seeking to coordinate, certify and train service providers from the private sector successfully. This vital and dual capacity building dimension has been seriously underestimated in many reform programs. This helps to explain why early and comprehensive institutional capacity assessments and subsequent competency development across public, private, and nongovernmental actors merits obligatory "pride of place" in current design and planning of reform programs aiming for viable and enduring service partnerships.

Privatization programs have to focus meaningfully on the need to achieve an acceptable national balance between (a) promoting and facilitating better commercial production and profitability in farming and (b) the need for appropriate human capital and social development programs for resource-poor smallholder farmers improving their incomes and livelihoods in ways that are sustainable and conserve the environment. Programs implemented over the past two decades have often failed to address the second area adequately; especially in recognizing and promoting the human capital development needed to begin achieving the potentials of smallholders as organized groups with significant stakes and needs in national development.

The case studies point clearly to the need to invest more effort in program design and preparation, including processes to foster deeper understanding and ownership among partners and actors for the overall national agendas in services reform and renewal (see section on Reform Processes for complementary analysis and insights in this respect).

Experiences from **Estonia and Germany-Brandenburg** underscore the fact that external prescriptions or "implants" do not work. Local adaptation to particular circumstances is essential and active stakeholder

participation is crucial to gradually foster farmer emancipation and capacity to articulate demand, build self-sustaining producer organizations and promote deep understanding and consensus on the overall goals and dimensions of privatization in the reform process. Other insights gained here include the need for separate regulatory (government) and advisory (private sector services) functions with mutual clarity on roles to avoid conflicts. Furthermore, state withdrawal and privatization of services can lead to non-provision of appropriate social extension for poorer farmers, thus raising serious implications for balance and equity in rural policy. The pace of reform is critical. If it is too fast and without sufficient orientation and understanding among actors, it can lead to "organizational standstill" and non-cooperation or inertia among actors; thereby seriously impeding or stalling the entire process.

An overriding factor in the Estonia experience was the need for a policy environment with demonstrable incentives for profitable farming; without these factors, reform agendas can remain remote and irrelevant for farmers and their organizations. The need for integration and harmonization among all actors and the realization that all are in a learning process were also central lessons to emerge from those studies.

Public-private partnerships may offer opportunities to provide services to the poor, while linking them to viable market opportunities. In **South Africa**, public support to the South African Sugar Association helped that industry-based private entity to provide improved services to small farmers. This initiative served the interests of the industry and helped the government to meet important social objectives. Studies from **Uganda** illustrate the diversity of sources (many private sector based) from which farmers obtain information services and the need to consider varied approaches to delivery of those services.

From **Venezuela and Mali** privatization experiences come salient lessons in two important, yet often neglected, areas. First, the crucial need not to ignore but focus strongly on is the social and human capital development needs of resource-poor smallholder farmers. To respond adequately to the complex needs of those groups, extension service providers need public sector program managers and field advisers with greatly enhanced competencies to plan and provide services using facilitation and problem-solving approaches with farmers in the context of wider community needs. These more responsive and accountable approaches foster gradual emergence of stronger, more self-reliant local smallholder farming organizations. This implies a significant shift from the traditional paradigm of technical expertise alone to the broader competencies needed for effective responses to the new "social" challenges faced by extension personnel. The case from **Pakistan** also highlights the problem of technical extension services aimed exclusively at commercial farmers. Smallholder farmers were excluded, as services did not take into account their socioeconomic circumstances or needs. The competencies for social extension are principally in (a) the practice of participatory extension approaches and (b) local farmer organization development. Development and provision of extension personnel with those competencies are crucial to helping organize smallholder farmers and helping them to articulate demand for the services they need.

The second area is *decentralization*. Discussions on privatization, like those on reform policies and programs generally took place independently of other critical and related reforms, such as decentralization. This compartmentalization of thinking and associated narrowing of program parameters has often led to policies or activities being pursued in isolation in limited areas without regard to allied initiatives ( i. e., an absence of comprehensive or systemic thinking and strategies).

To be effective, decentralization has to coordinate and often integrate service functions under new or revised modalities at local (often district) levels. In that context, there is a need to start the substantive processes of stakeholder participation at that level so that those most directly affected by new arrangements can provide input to policy development, decision-making, and program planning. Central government personnel and some local staff face serious challenges in understanding, internalizing and

putting genuinely 'bottom-up" processes into action at local levels; they have to learn to facilitate local ownership of emerging service systems rather than attempt to dictate the contents, structures, and pace of such processes.

Venezuelan experience indicates that performance criteria that include guidelines and quality of deliverables for executing agencies or service providers, are essential for new, smaller decentralized service systems focused on smallholder farmers. Clearly, where new multiple financing or cost-sharing mechanisms are envisioned (e.g., with state government, municipalities, and farmers) it takes considerable time to arrive at viable systems and procedures – especially in an environment where government must decide to make abrupt reductions in budgets or fails to actively support decentralization; or when continuity of donor funding becomes uncertain or ceases when a project ends.

**Niger** provides evidence of a successful project that was intended to explore the capacity of the private sector to manage publicly funded services and improve production from small-scale irrigation (farms of less than half a hectare). This was a market-led approach that contrasted with previous experience with large-scale, state-run irrigation schemes that had proven very costly and economically nonviable. Four innovations characterized the project: (a) project administration shifted to a private agency; (b) demand-driven distribution and private ownership of irrigation technologies; (c) progressive adoption of improved production and marketing technologies and skills; and (d) availability of simple, locally made affordable irrigation technologies.

Several lessons emerged from the project. Where smallholder farmers were given the incentive, scope and means to improve their production technologies and incomes, they increased their incomes substantially--namely by 256 percent in this case. Apart from active promotion of the overall project among farmer groups, the key extension services included local demonstrations of treadle pumps, identification and training of local artisans to manufacture the pumps, promotion of financial services (credit) availability, and input supply and storage techniques for larger harvests. Environmental sustainability, especially moderation in pesticide use and soil and water conservation in such a arid ecology remains a major challenge to farmers, service providers, and government alike. Better monitoring mechanisms have to be found.

The long-term experience with privatization (1997) of the former public sector agricultural advisory services (ADAS) in the **United Kingdom: England and Wales** highlights some recurring issues arising from the dynamics of privatization. What emerges from the experience is *the clear distinction* between demand-driven advisory services that farmers can buy from the private sector and supply-driven initiatives through which government wishes to influence resource or land management decisions in the interest of its own policies. There is wide diversity in the scope and range of private services available to farmers and some rural residents and commentators contend that this can lead to inefficiency when farmers have to spend a lot of time trying to source relevant information from a plethora of organizations with perhaps overlapping functions and responsibilities. However, ADAS claims that it is a comprehensive "one-stop-shop" with the ability to collect specific information or technical advice for the individual client.

The public sector also has a plethora of agencies most of which have needs to communicate with farmers as stakeholders. The key issue is how to ensure that farmers can access information in timely and efficient ways. This appears to require some streamlining of procedures, roles, and responsibilities of organizations such as the Countryside Agency, the Environment Agency, or English Nature. The U.K. government has expressed recent concern in relation to the "integration of economic and environmental messages" and the slow uptake of new technologies coming from public and industry-funded research by farmers. It sees

itself as having a more active future role in assuring the communication and provision of technical advice to farmers. The new Rural Development Service will be one agency through which this role will be fulfilled.

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# Privatization Experiments

# Chile: Origin and Evolution of a Privatized Extension System

M. Cox and H. Ortega

Chile was the first country to test a privatized extension service. This initiative originated in 1978, as part of the general economic liberalization of the Chilean economy imposed by the military government after a 1975 visit by professor Milton Friedman who prescribed a "shock treatment" to bring an end to high inflation. Reforms included drastic fiscal budget cutting to reduce inflationary pressures, and a drastic structural change to transit to a full-fledged market economy. This drastically reduced the role of the state in the Chilean economy. Major changes were effected in government structures, and the number of public employees was drastically reduced. This was the main motivation for privatization of extension activities.

Extension was traditionally the responsibility of the Institute of Agricultural Development (INDAP) for small farmers and of the Agrarian Reform Corporation for beneficiaries of the land reform that took place between 1962 and 1973. In 1978, the Agrarian Reform Corporation was dissolved and extension for all small farmers became the responsibility of INDAP. At the same time, staffing of INDAP was reduced from 5,000 to 1,000. Special loans and other arrangements were put in place to encourage the set up of professional groups to take over extension activities. The World Bank, which at the time was appraising a small farmer development project with INDAP, indicated that the "Bank was not aware of a similar scheme having been tried in any other part of the World."[1] Despite this diplomatic warning, the government went ahead with its plan and started the scheme of privatized extension.

## Stage One: The Technical-Entrepreneurial Assistance (ATE) Program 1978-83

Under initial program arrangements, the state, following the subsidiarity principle, offered grants for small farmers to hire private firms to provide extension services. Initially these private firms were composed mainly of former public employees severed from state employment in 1978. The program was designed for farmers to gradually absorb an increasing share of costs, with the state subsidy declining from 80 percent in 1978, to reach 20 percent in 1982, and zero in 1983, when farmers would be responsible for full payment for services. However, farmers never were able to pay their full share and the private firms providing services had to absorb the cost reductions with the decline in state financing. This led to a predictable decline in quality of services. There were no well-established procedures for service delivery and no quality control systems, either on the part of the state or of the farmers themselves. The most coverage the extension program was able to achieve was some 14,000 farmers, or just 6 percent of the universe of small farmers in 1979. This fell to only 5,100 farmers served in 1983.

## Stage Two: Integral and Basic Technical Assistance Programs 1983-90

Although no general evaluation of the ATE program was conducted, its limited coverage and the economic crisis, which struck the country in 1981-82, forced a reform of the program. A new Integral

[1]See IBRD (1980), p. 193.

Technical Assistance Program (PTTI) was established with firms wanting to provide extension services competing in public auctions for state funding of 80 percent subsidies for the cost of programs. Firms initiated programs by carrying out diagnostic studies of the agro-ecological zones where beneficiary farmers were located. From these studies, they prepared full proposals for required technical assistance services. Proposals included the number of farms to be visited by extensionists and frequency of visits; group actions to be implemented; and farmer field days and other extension activities to be carried out.

During implementation of this so-called integral program, it became apparent that some of the smaller, subsistence-type farmers could not fully benefit from this program. A new Basic Technological Transfer Program (PTTB) was established to serve farmers having holdings below five Basic Irrigated Hectares (HRB).[2] This program provided 100 percent subsidy for services and provided a fuller range of services, including family assistance, such as food security and nutrition, health and household hygiene. The target beneficiary was the family, not just the household head.

In both extension programs firms receiving *bonds* defined as contracts providing subsidies for service provision, recruited farmers interested in receiving technical advisory assistance. Farmers would receive the services free in the case of the PTTB, but, in theory, would have to pay 20 percent of the cost of services from the PTTI. The 20 percent farmer co-payment in the PTTI was to be paid only if the farmer received additional financing from INDAP; in practice, this never materialized.

Farmers were to be organized in "multi-modules" and "modules." Each PTTI multi-module consisted of 198 farmers served by one professional (Agronomist or Veterinarian, depending on the main agricultural activities in the area) and three technician-level extensionists, each serving one of three modules of 66 farmers each. The PTTB had multi-modules of 216 farmer families served by one professional-level technician and three teams of two extension workers each (one male and one female) working with modules comprised of 72 farm families. The women extension workers focused on family and social problem issues.

Selection of firms for these two programs was done by INDAP at the central level, and involved little political interference. This led to a concentration of program bonds in the hands of enterprises closely linked to the military government. In fact, three firms received almost 40 percent of all bonds auctioned by INDAP. No NGOs or farmer organizations were assigned bonds during this period[3]**.** There was no system for farmers to express their satisfaction, or lack thereof, with the services provided and little quality control on the part of INDAP. However, firms had clearer contractual obligations than previously and had to sign contracts with INDAP that set very precise duties and obligations, such as the number of farm visits, technical meetings, group activities, and other services to be provided. Coverage of both programs increased substantially from the previous period, reaching a maximum of almost 27,000 farmers in 1989, or over 10 percent of the potential universe of farmers to be attended. Evaluations found the following major shortcomings in the program:

- Excessive technical-production focus, with a short-term orientation and little assistance in market access.

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[2]The HRB is a measure based on the productivity of soils in different locations. In the irrigated Santiago region, one HRB is equivalent to 1 physical hectare, whereas in southernmost region of Magallanes one HRB was equivalent to some 350 physical hectares.

[3]NGOs were mainly financed by international donors, and were seen as opposing the government. Despite their technical capacities, NGOs were left out of the bond allocations.

- Despite explicit reference in the PTTI for the need to link it up to other INDAP activities, there were very few links with credit, research, or training programs.
- No clear graduation strategy was introduced, despite the fact that the World Bank project financing these programs had a clear requirement to graduate farmers from this assistance.
- There were no social control mechanisms for farmers to express their views and preferences.
- There was no system for groups to learn from the successes and failures of others.

### Stage Three: First Democratic Government: Increased Flexibility and Coverage: 1990-94

A new democratic government won the elections of 1990 and adopted the motto of "growth with equity." The major economic achievements obtained since 1982 were to be kept in place, but with a new emphasis on wider sharing of benefits of this growth. Small farmers were among those left behind by the previous growth process. Rural poverty had reached levels surpassing 50 percent of the rural population. Programs reaching small farmers were given priority. No return to state extension was to take place, but instead two main objectives guided extension activities: (a) increasing coverage and (b) improving services. Greater flexibility was introduced to the program, and new actors that included NGOs, farmer organizations, and universities were encouraged to participate along with the established private consulting firms. Coverage increased to over 50,000, or 20 percent of the total small farmer population. The program introduced assistance on entrepreneurial skill development and produce marketing. The decrease in subsidy per beneficiary was reversed, and from 1990 to 1996, program costs increased by 58 percent.

Several complementary programs were linked up with extension. The INDAP credit program expanded to reach about 43 percent of the beneficiaries of the extension program by 1994, and about 80 percent by 1997 (compared to 30 percent of extension beneficiaries earlier). Application procedures for an irrigation promotion program providing 75 percent subsidies for irrigation works were relaxed, allowing massive access by small farmers and leading to high levels of technology in farm irrigation systems (computerized drip irrigation is now quite common in this sector). A similar program, providing subsidies for up to 75 percent of the costs of reforestation, was also modified to allow access by small farmers.

The extension program itself was made more flexible with different sub-programs more attuned to the characteristics of recipient populations. A special program was established to assist indigenous populations, as well as special programs for certain geographic regions, such as the semi-arid north. Also, the poorest areas of the country began to be assisted by special rural development programs, adopting a territorial approach with strong local population participation that aimed at environmental and socioeconomic sustainability. Program linkages were established to coordinate work with programs developing managerial capacities of women farmers, training programs, and research programs.

Finally during this period a *technical control system* was established based in part on use of external technical consultants. However, because of the increasing number of programs that INDAP was creating, using basically the same number of functionaries as before, consultants gradually became responsible for regular functions of INDAP management, and were forced to leave aside their program quality control responsibilities.

## Stage Four: 1994-2000. Demand-Driven Project Approach

After 1994, major changes to the extension program introduced a project approach and a wider array of assistance instruments from which the farmers could choose. The *project approach* was supposed to generate a longer-term vision in the extension cum general small farmer development approach that the program had acquired. It was meant to set up production as well as organizational and economic targets for the program.

The *demand- driven approach* added a whole new battery of programs to the women, irrigation, and forestry programs set up in the previous period. New programs aimed at enhancing the managerial capacities of small farmers, promoting youth productive initiatives (a program, which experienced dynamic expansion, overwhelming the capacity of INDAP), promoting joint marketing networks of small scale producers, and promoting organizational development of small farmers. In all, including various credit programs, the number of INDAP programs increased from 10 in 1994 to 30 in 2000.

*Changes in the Technical Assistance Programs***.** The former extension programs (PTTB and PTTI) were reformed and renamed. The PTTB was called *Local Technical Assistance (SAL)* and maintained most of the characteristics of the PTTB, except for the introduction of a two year deadline for technicians providing services and the farmers to develop a group economic enterprise. These group enterprises were to be implemented using technical assistance subsidies provided under a next phase program, called the *Technical Assistance Program for Project Development (SAP)***.** If either the technicians or farmers were not able to come up with an association and enterprise initiative within the two-year period, the technicians lost their job and the farmers were left without extension services. This resulted in a serious distortion in the program. By early 2000, an assessment of the economic viability of over 1,500 of the program's economic associations found that less than a third were able to provide economic data or accounts and the rest had lost track of their accounts and, in truth, existed only on paper. Whereas the SAP program developed truly innovative projects, it provided not only traditional production technical assistance, as well as entrepreneurial and marketing assistance.

A third type of extension service created in this period was the so-called *Local Assistance Program (PRODESAL)* linked to municipal governments. Under this program, INDAP would fund a small team comprised of a professional and three technicians on the condition that the municipality (district) provide lodging and transportation for the team. In some cases, the results of the program were so successful that municipal governments expanded their contributions to increase the number of technicians under the program.

*Decentralization and social control: Theory and practice***.** Two other innovations were introduced in this period. Previously, decisions on allocation of the Extension Bonds (contracts for service providers) were issued at the central level. During this period, responsibility for this function was transferred to regional and local units of INDAP. The same was true for decisions on other programs, except for loans over a certain limit and for major loan renegotiations.

Another major innovation was the establishment of regional and local level small farmer committees that were to be consulted on program decision-making, thus introducing *social control* over the major programs. In the case of extension, farmers had to agree with proposed projects, and then at the end of the cropping season they had to participate in an evaluation of the firm providing the extension services. One serious constraint in this system was that farmers participating in the evaluating committees were not necessarily the farmers receiving services, but rather were well-established local leaders selected by INDAP.

These changes gave the extension program two levels of control (a) the technical control established earlier based on hired private consultants and (b) the local farm leaders serving on regional and local oversight committees. However, both control systems operated in an ad hoc fashion and did not evolve into a proper monitoring and evaluation system that could maintain objectivity and resist influence by local politicians. Problems were, not surprisingly, especially severe in the case of the credit program; which experienced a sharp drop in the recovery rates from the nearly 90 percent recovery rate of the previous period to slightly over 50 percent at the end of 2000.

## Stage Five: Year 2000 to the Present

A new government of the center-left coalition came into power in 2000 and initiated a major reform in the overall policies of INDAP. The central objective was to concentrate on production and economic development programs, including extension, while gradually reducing credit activities and concentrating on small-scale loans. The extension program was reformed, eliminating the need to produce an associative economic diversification project in two years, leaving this open to common agreement of the farmers and consultants, and promoting voluntary association of its clients.

The extension program continued with its two types of technical assistance programs, but introduced *democratic election* of the members of the Local User Committee entrusted with evaluation of extension services. The new credit policy and introduction of this democratic social control system, generated strong political opposition due to the severe blow changes would have on well-entrenched special interest-oriented practices, which had crept into the programs. This led to replacement of the management team, which was instituting the reforms. The new management team continued the program changes, but with greater care in balancing political forces. The extension program again announced a new set of operating rules in 2003.

The new program has two stages: (a) diagnostic study and (b) technical assistance. In the diagnostic study stage, the service provider identifies the activities to be developed by small farmers individually or in association; and identifies the various technical assistance requirements for implementing the activity. The Technical Assistance Program, formulated under the diagnostic study assists farmers with production, marketing, produce quality management, accounting, judicial, and other activities required to implement the plan. Under new rules, the private consultant or firm that assists in the diagnostic study cannot also participate in the implementation of the program.

A new program, called *Investment Development*, will assist in better coordination of the various programs (about 30), which INDAP has available to support small farmers. The coordinated programs have just been announced, so there is no evaluation of their impacts.

## Major Impacts of the Program

The long-standing privatized extension program, in place since 1978, underwent a very comprehensive evaluation in 1998.[4] The study, covered most agricultural regions of the country, included a comprehensive survey of some 2,868 small farm families that had received extension services from the

[4]The study was carried out by a consortium under the leadership of RIMISP and included a Dutch Foundation (STOAS), a long-standing NGO (GIA), and a private consulting firm (EMG). The 1998 study is Evaluación de Instrumentos de Fomento Productivo: El Programa de Transferencia Tecnologica del INDAP. Santiago, Chile.

program, and another 1,169 families that had not participated in the program. Extensionists , INDAP staff members, and staff of related public and private institutions were interviewed. Below is a list of the main findings:

- The program on average had a substantial positive impact on the gross margin and incomes of its clients. However, those farmers having a sizeable part of their income from nonagricultural sources did not benefit, or had even lower agricultural incomes than those farmers not receiving extension services. For some crops, the effect of the program was negligible (mostly traditional annual crops) or even negative (the case of maize, where private commercial extension provided by the hybrid seed companies has had a stronger effect than the more traditional advice given by the program).
- Those participating in the program had higher levels of innovation than non-participants.
- In some regions of the country (regions with both high and low agricultural potential), the program had little impact. The study was not able to determine the reasons behind this finding, but it might be due in part to the extreme decentralization and lack of a clear central system for monitoring, evaluation and control.
- Those who participated in the program had higher levels of social capital, participating in more self-help organizations than those not receiving assistance.
- The private benefit of the program is higher than its public cost, suggesting that the program could be self-financed, if it has true ownership by farmers.
- The program responds well to market opportunities, but is not geared to creating them.
- The failure of co-financing to materialize has prevented development of a true market for technical services, other than that totally dependent on the main buyer, INDAP.
- The extensionists participating in the program are not up-to-date on innovations occurring in the sector.
- Problems of program focus are evident in the areas, and with the groups of participating farmers who are not achieving significant results.

## Conclusion

After 25 years of implementation, the problems with Chile's privatized extension service are still complex; and clients have not yet taken full ownership of the program. The rationale for its birth still haunts the program. The main rationale for its creation under the military government was to provide employment opportunities for those public employees being made redundant. Democratic governments that followed seemed to take the attitude of "since we have it, let's see how to make it work."

The very thorough evaluation conducted in 1998 found the program to have had positive economic impacts, but to have several severe problems that remain. A critical issue is the lack of a social control mechanism ensuring client satisfaction and ownership. Political interference has prevented development of such mechanisms. Transfer of the Extension Bonds to the farmers themselves would seem an ideal solution to this problem, but has not been tried on the grounds that this could result in very high transaction costs for service provision to widely scattered clients. In view of the good rural roads that Chile now has, this strategy could be tried and would allow greater ownership by farmers; making it possible to finally implement co-financing requirements which have not yet achieved the minimal level (20 percent) proposed in the reformulated program.

Another major problem has been the lack of a centralized system of monitoring and evaluation to facilitate control of quality of services provided in different regions and to reduce potential political interference. Also lacking has been a system of technical support for extensionists. Partnerships with the Research Institute have not produced results expected, nor have cooperative agreements with the universities. This is a major shortcoming that still needs to be resolved.

In the current situation, where economic and market factors are more critical to success of farming activities than are technical constraints, there is a need to explore ways of providing the comprehensive assistance that includes financial management, farm management, and marketing assistance) required for successful farming operations. One option would be for extension service providers to share in the results of innovation. This would ensure that service providers would take into account market opportunities as well as risks.

The Chilean model is now promoted enthusiastically throughout the world in an ongoing drive for privatization. This wide diffusion process has been carried out without fully taking stock of the problems encountered in implementation. The time is ripe for a practical evaluation of the advantages and limitations of these schemes in order for other countries implementing extension reforms to learn from the mistakes of others, instead of "reinventing the wheel" one-by-one as seems to be taking place.

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# Ecuador: New Approach to Agricultural Extension

Kamal Dow

Investment in the agricultural sector of Ecuador, and specifically, in the research-education-extension system (REE) has been traditionally low by international standards, even as compared with other countries in the region with similar per-capita GNP. A set of macroeconomic policies implemented from the 1960s to the 1990s, with overvalued exchange rates, subsidized rates of interest, high import barriers, and an expansionist fiscal policy sustained by an oil boom, subsidized industry and the urban population; and discriminated against agriculture and the rural sector. Low food prices discouraged private investment in agriculture, and depressed the demand by farmers for REE services.[5] Thus, the Government felt no pressure to improve those services.

As a result, Ecuador has never really had a working extension service, although many public and private organizations have carried out extension type activities. The Ministry of Agriculture (MAG) had an extension service with agents that were underpaid, and had practically no logistic support or budget for operational expenses. Thus, the service existed only in name. In addition, MAG had crop specific programs that carried out extension, and implemented other programs with the technical and financial assistance from multilateral agencies such as the Inter-American Institute for Cooperation on Agriculture (IICA) and the Inter-American Development Bank (IDB). Other agencies such as the Ministry of Social Welfare also carried out some extension activities. In the private sector, different NGOs as well as the Chambers of Agriculture did likewise. Even though some of these efforts may have had some success, the net result was duplication of efforts and a waste of valuable resources.[6]

In the mid 1990s, the Government of Ecuador (GOE) decided to undertake a comprehensive effort to modernize its agricultural sector. The "Programa de Modernización de los Servicios Agropecuarios" (Agricultural Services Modernization Program) known by its Spanish acronym of PROMSA was financed through loans from the IDB and the World Bank. The program has three main components: (a) Plant and Animal Health, (b) Technology Generation (Research), and (c) Technology Transfer (Extension). This last component, the subject of this case study, set quantitative goals for its initial five-year period of increasing agricultural yields for the main crops by 25 percent and reducing post-harvest losses by 25 percent.

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[5]Whitaker, Morris D. "La Base científica Agrícola." In "Políticas Agrarias en el Ecuador, Evaluación 1990-1996." Documento Técnico No. 2. MAG, Quito, Enero 1998.

[6]Ibid.

In late 1997, a call for bids was opened for the implementation of the Technology Transfer Component (TTA). One Ecuadorian and five international groups submitted proposals. A committee composed of GOE and IDB personnel reviewed the proposals and awarded a contract to PROUNID, a private Consortium formed by PROEXANT (an organization that promotes nontraditional exports from Ecuador), the University of Florida, and Fundación IDEA (an Ecuadorian private foundation that studies and promotes agricultural strategies). The contract was signed and implementation started in September 1998.

## Innovative Nature of the TTA

The main purpose of the TTA, as stated in the Project Paper, was "to replace the traditional public system of agricultural extension, presently managed by MAG and implemented by public employees, by a technology transfer market financed both by the GOE and the beneficiary farmers, in which private technical assistance agents will compete for the provision of the services," or in other words, the privatization of the agricultural extension service.

The general objective is "to foster an increase in productivity and profitability of agricultural enterprises in Ecuador, through a user participation process of technological innovation and entrepreneurial development, for which the modernization of technology transfer services is required." The uniqueness of the TTA is reflected in its approach, which has four main characteristics:

- It is **private**. Private agents providing services can be individuals, consulting firms, NGOs, producer groups, or other entities. The service providers enter into private contracts with the beneficiary farmers and are accountable to them. Most importantly, the beneficiaries pay for the service, as opposed to the previous paternalistic approach of free services but no accountability to the clientele.
- It is **a process in which the user participates**. Farmers participate in the initial diagnosis of problems and development of specific alternative solutions and plans of work, as opposed to the previous approach in which agents imposed technological packages of a general nature.
- It is **demand driven**. Services are provided only to those communities and farmers where there is an effective demand, reflected by a willingness to follow the TTA methodology and to pay for the service.
- It is **comprehensive**. Technical assistance covers the entire chain, from farm production activities, to adding value, marketing, entrepreneurship, and resource management.

## Operation and Methodology of the TTA

Four main entities make up the operational structure for the TTA:

- The **Project Implementation Unit (UIP)** is a semi-autonomous unit located in MAG. It manages the three components of PROMSA, and carries out, on behalf of the GOE, the technical and financial supervision of the TTA.
- The **Technical Implementing Unit (UTE)** is the executive unit that on behalf of the contractor PROUNID, implements the TTA activities. As such, it is responsible for negotiating and managing contracts with field operators, managing the TTA budget, and monitoring progress. The UTE submits quarterly progress reports to the UIP.

- The **Field Operators** are private contractors (individuals, consulting firms, and NGOs) that actually carry out the extension activities and report to the UTE.
- The **Beneficiaries** are groups of farmers that demand and use the extension services.

## Characteristics of the Clientele

The TTA was designed with a specific clientele in mind: farmers that produced for the market; had potential to become entrepreneurs; considered agriculture as a business; had good agricultural land; access to irrigation and adequate infrastructure; and whose main limitation was access to modern technology. It was not aimed at marginal or subsistence groups. Only producers willing and able to pay for the service were targeted as beneficiaries. They could be small, medium, or large in terms of land and capital assets. However, because of government budgetary problems, once TTA started, a policy decision by the UIP focused work mainly on small farmers.

*Contracting*. Eventually when the TTA is fully operational, it is expected that the beneficiaries will be able to negotiate and contract directly with operators (service providers) for technical services. In the mean time, the UTE serves as facilitator, identifying potential operators, assessing their technical and administrative capabilities, negotiating with them, and contracting their services on behalf of beneficiary groups. Contracts clearly state that the operators are accountable to the beneficiaries.

The operators are paid for their services from two sources: (a) UTE pays them a percentage of the contract value from government funds provided as a subsidy to the farmers; and (b) the remainder is paid directly by the beneficiaries. The government subsidy covers a declining percentage of the costs, covering 95 percent of the costs the first year and declining 70-75 percent of the cost at present. According to the original project design, small farmers were supposed to cover 35 percent of the cost by the sixth year, but it was not clear whether the subsidy for these groups would remain permanent at this level or be phased out completely.

*Delivery of services*. Services are delivered by the operators through private extension agents (AATP). The project design called for each AATP to service 100 producers using a group approach with 100 beneficiaries divided into five groups of approximately 20 farmers each. These groups are homogeneous in terms of their production systems and geographical location. This methodology uses the monthly group meeting as the basic tool for delivery of technical assistance. The group meets at set dates on the farm of one of the participants, where the AATP leads a discussion of relevant technologies, problems, and potential innovations and work being done by the host farmer is observed and discussed. The meeting place rotates every month. Whenever it becomes necessary, the AATP will hold meetings of smaller subgroups for specific purposes.

Methods for delivery of technical services include demonstration plots, field days, observation tours, short courses and seminars, publications, and radio broadcasts. The scope of services provided is wide, including, but not limited to assistance in: production, post harvest practices, marketing, a price and market information system, establishing strategic alliances with input providers and buyers, obtaining legal status for groups, project design, requesting and obtaining credit, establishing saving cooperatives, establishing input stores, farm accounting. and resource management.

## Field Supervision and Follow-up

The UTE has a Monitoring and Follow-up Unit in charge of measuring the performance of the operators, the AATPs, and the groups of beneficiaries. The UTE Monitoring and Follow-up Unit also assesses progress toward achieving the TTA goals. Monitoring field activities is carried out by the UTE Supervisors, each responsible for supervising 10-15 AATPs. Field evaluations are done on a quarterly basis. Four years of implementation have produced very satisfactory results, in terms of achieving the main purpose of creating a private market for technology transfer, as well as the specific objective of increasing productivity and profitability of agricultural enterprises.

The private technical assistance market is functioning quite well. By early 2003, there were 114 organizations and 1,242 individual technicians registered with the UTE as operators. Of those, 31 operators are currently under contract with UTE, providing technical assistance services through 180 AATPs. Twenty-one operators are classified as small, having between one and five AATPs; seven operators are medium size with between 6 and 15 AATPs, and three operators are classified as large with 16 or more AATPs. Operators are servicing over 18,500 producers in 835 groups. Over 90 percent of the beneficiaries pay for services regularly and without delay, a rather impressive accomplishment, reflecting a change in attitude, since they were used to receiving free services from the government. A recent survey showed that practically all the beneficiaries were willing to pay 33 percent more for the technical assistance in the coming year.

Specific quantitative goals of the TTA were to increase yields and reduce post-harvest losses both by 25 percent over the five years of its initial duration. These goals were reached, for most crops, by the second year of implementation, and have by now been amply surpassed. In some of the main crops, such as hard corn and rice, yields have more than doubled in some locations, thanks to the adoption of simple technologies such as use of certified seeds, changes in plant density, and improved cultural practices. Post-harvest losses have been substantially reduced by better harvesting, storage, packing and transportation practices (see table 2.1). As a consequence, producers' incomes and standards of living have improved significantly from pre-TTA levels, as shown by three independent evaluations contracted by the UIP.

**Table 2.1. Changes in Yields and Post-Harvest Losses During the TTA Project**

| | *Yields in Kg./hectare/year* | | | *Losses as a percent of production* | | |
|---|---|---|---|---|---|---|
| *Crop* | *Before TTA* | *After TTA* | *Percent increase* | *Before TTA* | *After TTA* | *Percent reduction* |
| Rice | 2,455 | 4,068 | 66 | 15.8 | 5.4 | 66 |
| Cocoa | 202 | 358 | 77 | 16.8 | 5.2 | 69 |
| Coffee | 623 | 681 | 9 | 6.0 | 2.9 | 52 |
| Sugarcane | 50,000 | 60,000 | 20 | 0.1 | 0.0 | 100 |
| Beans | 865 | 1,772 | 105 | 17.3 | 6.1 | 65 |
| Lemon | 7,678 | 9,266 | 21 | 2.3 | 1.3 | 43 |
| Corn | 2,151 | 3,433 | 60 | 16.2 | 5.8 | 64 |
| Tangerines | 40,000 | 43,000 | 7 | 23.0 | 20.7 | 10 |
| Peanuts | 1,547 | 2,092 | 35 | 17.3 | 2.4 | 86 |
| Passion fruit | 13,581 | 19,812 | 46 | 6.4 | 4.2 | 34 |
| Pineapple | 41,400 | 45,000 | 9 | 8.6 | 4.6 | 47 |
| Plantains | 14,732 | 15,233 | 3 | 18.6 | 16.4 | 12 |
| Soybeans | 1,217 | 2,114 | 74 | 5.8 | 1.7 | 71 |

Source: TTA Project records

In addition to achievement of the goals mentioned above, the TTA has had a significant impact on the way producers organize themselves and their production systems, in the way they do business, and in their access to services and markets:.

- Sixty percent of the TTA groups have obtained legal status that allows them to lobby and negotiate more effectively.
- Most groups have made strategic alliances with input providers as well as with potential product buyers, and obtain advantages that they could not get on an individual basis, buying their inputs cheaper, and selling their products at better prices.
- Most groups have been able to enter local, national, and international markets, previously not accessible to them. Many groups have, for the first time, sold their products directly to wholesale markets, and some are exporting directly to the U.S. and the European Union.
- Many groups, through their own newly formed enterprises, are adding value to their products. Milk processing plants, cheese factories, rice mills, alcohol distilleries, feed plants, packing plants, and other facilities are owned and operated by the producers.
- Many groups have established their own input stores, within their communities, saving them time and money.
- Many groups (35 percent) are encouraging savings by their members and have established saving cooperatives that give small loans to members. An external evaluation found that TTA participants were able to increase their savings by 26 percent within three years.
- Most groups are conscious of the importance of preparing project proposals, through which they have been able to obtain credit for production, processing, and marketing.
- All groups have become conscious of the need to follow environmentally sound practices and of the advantages of organic and ecological production. About 70 percent of the participating groups had, by the beginning of the fourth year, eliminated or substantially reduced use of toxic chemicals. About 20 percent of the groups are producing with organic labels, and some have been quite successful in exporting to the European Union under the "fair trade" label.
- Most producers know now how to calculate their costs of production and are able to look at agriculture as a business.

## Sustainability

Its important achievements notwithstanding, the TTA is not fully sustainable at this point. If the PROMSA project is discontinued and funds for partial subsidies for technical assistance become unavailable, most of the progress made so far would be lost. An estimate based on program experience and familiarity with the participants is that perhaps no more than 50 percent of the participating farmers would continue in the program and be willing to pay the full price for service. There are two reasons for this.

First, the present clientele is made mainly of small producers, who are presently paying about 20 to 25 percent of the cost of the service. Without a subsidy, they would have to pay between US$20 and US$25 per month, a significant sum for most of them. Such an increase would be hard to accept, particularly for those recently incorporated into the program.

Second, if full payment were required, it would be hard, if not impossible, to recruit new participants. The initial success in recruiting participants was due mainly to the fact that payment for the first year was nominal. Farmers are willing to pay for technical assistance only after they have been convinced of its results and consequent value.

In order to assure sustainability, the government must stay involved and committed to the TTA. It must make a policy commitment to support private extension and must ensure that small farmers have equal access to quality technical assistance. This latter commitment is presently accomplished through the subsidy. Administration of the program, including the certification of technical assistance providers, must be trusted to the private sector, as is now the case with the UTE. This will ensure an ability to make and implement timely decisions, to strictly enforce contractual agreements, and to keep the system free from political interference and pressures, thus guaranteeing its quality.

## Lessons Learned

Important lessons learned during implementation of the TTA have to do with the model used, the administration of the system, and the approach used for provision of technical assistance services.

Implicit in the design of the TTA was the idea of a competitive technology transfer service. This implies a relatively large number of providers (supply) as well as users (demand). Experience has shown that in a small country like Ecuador, with a relatively small number of program beneficiaries, it is not easy to avoid a relatively high degree of concentration on the supply side. The main reason is that in order for the activity to be attractive to private firms, and to assure a quality service, there is a minimum size in terms of number of AATPs (operators get paid a set overhead fee for each AATPs that they provide) that will allow operator to have adequate infrastructure and provide the office and field support that AATPs need. In the case of Ecuador, that minimum number appears to be around 18 to 20. Smaller firms have been able to participate only if they are nonprofit NGOs or have other sources of income. Thus, in order to have a truly competitive system, the number of beneficiaries needs to be substantially increased. This brings us to the next point.

The initial design of the TTA called for around 30,000 beneficiaries to be serviced in the first phase. Because of budgetary limitations, the number was later reduced to its present level of 18,500. However, the administrative unit, UTE, has to have a minimum size in order to function effectively. It needs a director, a national coordinator, a financial and accounting unit, and a follow-up and evaluation unit. Based on TTA experience, it appears that the present structure of the UTE could serve at least 50,000 producers. Obviously, the current cost per producer served is higher than it should be. Therefore, a program of the nature of the TTA, needs a large number of beneficiaries in order to optimize its benefit-cost ratio.

Another lesson from experience has to do with the budget allocation per AATP. Implicit in the original design of the TTA was the need to hire top rate professionals as AATPs in order to assure high quality services. The budgetary difficulties already mentioned, forced the GOE to reduce the budget per AATP from an original US$21,000 per year to US$13,000, though this was later increased to US$16,000. As a result of this and the high inflation rates in Ecuador, the TTA has become a less attractive employment option and has experienced a larger than desirable turnover of AATPs. Success of a program like TTA depends to a great degree on the confidence that users of the service have in the providers. Changing AATPs frequently does not help in this respect. A successful program requires budgets that are adequate and that keep pace with opportunities in the rest of the economy.

Another important lesson learned was that the system has to be housed outside of government facilities, and has to be managed by a private organization. During the first few months of the TTA, contracts with operators had to be subscribed jointly by the UTE (private) and the UIP (GOE). The scheme did not work well because of all the requirements for official contracting that slow all actions and hinder the decision-making process. A private contract is easier to implement and monitor. Knowledge by the operators that the UTE can swiftly cancel a contract and collect on the guarantees posted, acts as an incentive to provide the best service possible. In a country like Ecuador, where strikes by government employees are common, it is important for a project like TTA to be housed outside GOE offices to avoid interruptions and delays.

There are also lessons to be learned in relation to the methodological approach used for provision of services. The one AATP per 100 producers specified in the original project design is too rigid and needs to be made more flexible. This works relatively well for groups of small farmers, concentrated in rather small geographical areas, but not so well in the case of medium size producers, where logistic and mobilization problems arise. Had budgetary problems not forced the TTA to concentrate its efforts on small farmers, important problems would likely have come up in work with medium and large producers. Perhaps a better criteria in determining the ratio in question would be a combination of value of production and number of beneficiaries. This is something that the program has intuitively grasped, but which should be studied in more depth in the design of other such projects.

The original design of the TTA also implied a uniform work methodology based on monthly group meetings, a similar profile for all AATPs, a somewhat uniform range of services to be offered to all participants, and a uniform cost per AATP. This simplified model was useful in the first stages of launching the TTA, but as time passed, experience has shown the need to personalize services to fit the particular needs of different farmer groups. In some cases, services may be needed only on a part time basis. In other cases, farmer interests would be better served by a team of advisers rather than by an individual AATP. To a certain extent, the TTA has incorporated flexible operating principles in some of the work with large operators. All these considerations need to be taking into account in the design of a second phase for the TTA.

Another important lesson has to do with achieving an appropriate balance between generating information to monitor progress of the TTA, and the danger of creating a system that focuses more on numbers than on real results. A common mistake is for implementing agencies to judge success of a project solely by numbers, ignoring things that are difficult to measure or quantify, such as the ability of farmers to make their own decisions and manage their resources in an increasingly complex and competitive environment.

## Policymakers' and Stakeholders' Views of the TTA

Design and initial implementation of the TTA took place under administrations that were generally friendly towards the private sector and conscious of the role of the government as a policymaker. They understood the need for the state to leave actual implementation of programs in the hands of the people directly affected, that is, the private sector. This approach has been instrumental in securing the achievements of the TTA. The overwhelming opinion of the beneficiaries is that for the first time there is an extension program that is relevant, serious, and committed to get results. The degree of satisfaction by the users is very high, as shown by their willingness to pay for services. Most groups of beneficiaries have expressed to the government their desire for the program to continue, and many new communities have requested to be included.

A new government was installed in Ecuador in January 2003 and at the time of this writing the future of the TTA is not completely clear. The new Minister of Agriculture has expressed an intention to increase coverage of extension service to all farmers free of charge, with services provided under the Ministry's administration. This could mean the end of the TTA concept of a private technical assistance market.

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# Estonia: Fluctuation Between Privatization and Public Sector Reform

Hanna Kreen and Ülar Loolaid

The case of Estonia examines the development of an advisory services market since 1995. This development involved establishing new institutions, design of new legislation, building new linkages, investing in infrastructure, and extensive training to improve functioning of the agricultural knowledge and information system (AKIS).

### Evolution of a New Extension System

Estonia experienced an economic transition and reform of the agricultural sector at the end of the 1980s and in the early 1990s. Restructuring the economy and agricultural sector required new types of services which included advisory services. The main goals for the transition reforms in Estonia were to consolidate independence, develop a market economy, and build a democratic society. Development of advisory and extension services has followed changes in the economy and the changing needs of society. After less than ten years Estonia is preparing to join the EU and is going into new reforms that present new challenges for advisory and extension services development.

#### *Initiating a New Institutional Set-up for Advisory Services (1989 - 1992)*

After the establishment of new family farms, the most innovative farmers realized the need for associations of their own. The very first Farmers' Federation was established in 1989 and by 1991 the Farmers' Federation organized the first advisory services system in independent Estonia. This system included regional advisory stations of farmers' unions, training centers located at two farmers' unions, and the Jäneda Advisory and Training Center. Presently, there are 16 regional Farmers' Unions in the 15

regions of Estonia. These are all connected under the central umbrella organization, the Estonian Farmers' Federation.

### *Building User-oriented Advisory Systems (1992 - 1995 and later)*

A number of projects financed by different donors were initiated to support the development of extension services. These included the Advisory System of Farmers' Federation (Denmark), Advisory Cooperatives (Germany), the Knowledge and Information Center of the Estonian Agricultural University (Sweden), the dairy farming improvement project (Netherlands), and others. Projects proved not very sustainable, because most failed to "implant" the advisory model from the country of origin.

### *Initiating a Free Market for Advisory Services (1995 - 2002)*

The government of Estonia recognized the need for proper agricultural services and allocated some additional budget to the Agricultural Training and Advisory Center at Jäneda for advising farmers. The government also supported the farmers' unions, but the advisors of farmers' unions were not able to give adequate advice to large-scale agricultural enterprises, and farmers complained about the quality of advice they received. In line with its free market policy, the government of Estonia wished to see the development of a competitive free market for advisory services, where producers would be free to buy the kind of advice they need at a mutually agreed price. However, considering the situation in agricultural sector, the government realized that, because capacity of farmers to buy advice was very low, there was a need to subsidize the advice. The objective was to encourage farmers to use advisory services in a way that would increase production efficiency. As a result, the government initiated an advisory subsidy scheme and a program for certification of advisers.

### *Fluctuating Between Privatization and Public Sector Reform (1999 -2003)*

At the beginning and middle of the 1990s, Estonian agricultural policy was one of most liberal in the world. Subsidies and intervention in the agricultural sector was minimal. However, all interest groups in society did not accept this, and, because joining the European Union has become a government priority, there is now a need for harmonization of Estonian legislation with that of the EU and for establishing new governmental institutions. Because the agricultural sector in the EU is highly regulated and subsidized, Estonia will also have to change its agricultural policy. Easy access to trustworthy information on regulations concerning agricultural production or the environment significantly increases farmers' marketing ability and competitiveness. Therefore, it is in the interest of the government to disseminate information that will facilitate introduction of new legislation and support schemes for farmers. At the same time, many agricultural producers lack awareness of existing information sources and, as a result, do not get the information they need. There is a strong need for development of new infrastructure for information dissemination.

There are two major forces behind the advisory services market development: (a) the need for structures and institutions to improve advisory services market performance and (b) the need for structures and institutions to support new agricultural policy. Changes in priorities and increased interest in information delivery have resulted in competition between various extension and advisory activities and have caused unplanned disturbances in the advisory services market.

## Advisory Market Development in Estonia

Since 1995, a complex of measures have been initiated in Estonia. These measures are training and certification of advisers; design of regulations; planning and strategy formulation; monitoring and evaluation; establishing channels for distribution of information to wide audiences; development of infrastructure for advisory and information services; and building a management unit. These measures were financially and technically supported through different programs, including the EU Phare Agricultural Services Project (1995-1998), the World Bank Agricultural Project Advisory Services Component (1996-2002), the National Agricultural Advisory Services Program (1995-2001), and others.

### *Scheme for Delivery of Individual Advisory Services*

A subsidy scheme for individual advisory services was developed over seven years. The scheme provides a framework for farmers to purchase advisory services. A farmer seeking advice contacts the adviser that he or she judges most suitable. Together, the farmer and adviser prepare a contract containing mutually agreed terms regarding services, dates and payments. The adviser sends a copy of the contract to the relevant government office for approval. The contract can be rejected if either the farmer or the adviser is ineligibility or if the farmer has already exhausted his allocated amount of subsidy.

Lists of eligible advisers are available in each county office and on the Internet. Officials do not interfere in advice or payment rate matters as these should stay only between the farmer and the adviser. Approval of the contract means that the state subsidy for this particular contract is guaranteed. Not all farmers and advisers are eligible for the scheme. A farmer must be officially registered to be eligible for the advisory subsidy, and the adviser must be qualified by virtue of an endorsement procedure. A qualified adviser is expected to serve the farmer's best interests.

After the approval of the contract, the adviser delivers the services as agreed and reports the actual time spent and services offered. If satisfied, the farmer approves the report and pays his share of the contract. Copies of the report and the receipt are sent to the government office, where the adviser is paid the outstanding balance of the contract amount. The farmer's satisfaction with the quality of work done by the adviser is very important. If a farmer is not satisfied, the report is not approved and the adviser can neither get the state subsidy nor the farmer's payment. This method of quality control is quite effective and advisers who do not meet farmers' expectations soon go out of business. The subsidy scheme has evolved during its operation.

- During the period 1996 to 2000, implementation was decentralized. Every county administration was responsible for management, financing and accounting for contracts for farmers in the county. The Ministry of Agriculture performed only coordination functions.
- Since June 1997, only certified advisers have been entitled to deliver subsidized individual advisory service.
- Since 1998, a standard for advisory service was put into operation and subsidized advisory services must also include advice in written form.
- Since 2001 implementation has been centralized. The Agricultural Registers and Information Board (ARIB) central office manages contracts (including applications) and the subsidy scheme.
- From 1996 to 2002, farmers had to pay their share of contract fees to the advisers and the government then paid its share. From 2003, farmers will have to first pay full costs for the advisory services and

then, after the contract is completed, the farmer will be able to submit an application for reimbursement of the advisory service subsidy.

### *Arrangement for Certification Advisers*

Advisers are agents for the subsidy scheme, and, since July 1997, only certified advisers are eligible for payments under the scheme. If a farmer uses services of a non-certified advisor, he has to pay 100 percent of the contract amount. For certification, an advisor has to have: a university degree, vocational education or equivalent qualification in agriculture or a related field; independence from input supply or processing companies or from governmental control functions; training in advisory methods and communication skills; and prior experience as an adviser.

Certification procedures require an applicant to present relevant documents, prepare written advice, and meet with the commission for certification. Different institutions have managed administration of the certification procedures. Initially, from 1997 to 2000, the Estonian Association of Rural Consultants managed the certification procedure. From 2000 to the middle of 2002, this function was taken over by ARIB, and, since the middle of 2002, certification has been the responsibility of the Ministry of Agriculture, Bureau of Research, Education, and Extension.

Most independent advisers are freelancers or employees of advisory companies or farmers' unions. Because of the lack of security in the advisory services market, several agribusinesses have employed independent advisers over the last few years.

### *Setting-up a Nationwide Network*

A number of agencies and organizations deal with rural development – the Ministry of Agriculture, the Ministry of Environment (including the National Land Board), and the Ministry of the Economic Affairs (including the foundation "Enterprise Estonia" and its agencies). This has led to a proliferation of programs aimed at developing rural areas and, in particular a proliferation of Rural Information Centers (RICs), E-cottages, business advisory centers, and Euro-Information agencies. Activities of different sector-based information networks are not well-coordinated.

To improve the flow of information, Estonia needs an integrated information program that makes needed information available as close as possible to the ultimate consumer in all rural areas. Information must be relevant and up-to-date and this requires that in addition to the dissemination of information, there needs to be good monitoring to follow-up on information use and get rapid feedback for program adjustments. The following activities were undertaken to develop the national agricultural knowledge and information systems (AKIS) and improve cooperation and infrastructure support: (a) advisory concept group (2000-2001); (b) agricultural and rural information flow coordinating center (AICC) (2001-2002); (c) network of information centers at the county level (2002); and (d) network of rural information centers in communities (2001-2002).

The **Advisory Concept Group (ACG)** was established as a support system to help achieve sustainability and continued development of the advisory system. The group allows developments to be discussed in an informal setting with all players in the field of information flow. Thus, ACG generates ideas for development activities; back this up with needed resources, provide necessary training and self-study services, supply members with needed information, assist in collecting and preparing materials, and promote cooperation between members of the advisory services complex.

The **Agricultural and Rural Information Flow Coordinating Center (AICC)** serves in collecting, analyzing, and mediating information by organizing cooperation with research and education systems, administrating databases and the agricultural Internet portal, and coordinating information flow in the regions. An enormous task is that of promoting information flow activities and gathering and analyzing feedback from regions and consumers. The first steps in building up the AICC were project-based and fulfilled by different organizations. The most visible of the AICC tasks is that of maintaining the Internet portal, which contains basic information about agriculture and rural areas, regulations and support-schemes, agricultural news, and links to other sources.

**County Information Centers (CICs)** were set up to coordinating information flow in regions efficiently. A CIC is basically an office with an open door for clients and a mandate to provide information on regulations and other governmental information to rural people (producers, farmers, and rural entrepreneurs). A CIC also has available advisers in basic agricultural fields. A CIC clarifies the information needs of the specific county, advises and guides clients to the information they need and organizes special information day events. CICs send information about clients' needs to the AICC and get back the information requested. The AICC and CIC provide information and support for farmers and for private advisers who are an important and direct link to farmers.

**Rural Information Centers (RICs)** consist of a small office in a parish with a computer and an Internet connection. They provide basic guidance on use of the computer and Internet options for visitors and computer home-users. The RICs selected for the information flow program were the most active ones, which were already fulfilling many of the required tasks and wanted to be a part of the overall information flow system.

### *Impact of Advisory Market Development Measures*

The advisory subsidy scheme has provided information and advice to many farmers for improvement of farming practices. This is important in the Estonian situation, as many farmers (about 40 percent of respondents in a 2001 survey) do not have an agricultural education. During the period 1997-2000 more than 4750 farms or agricultural enterprises used individual advisory services through the subsidy scheme. Farmers are generally satisfied with their advisory services (see table 2.2).

**Table 2.2. Farmer Satisfaction with Purchased Advisory Services (Percent)**

| | *Completely satisfied* | *Partly satisfied* | *Difficult to say* | *Not very satisfied* | *Not satisfied* | *Number of respondents** |
|---|---|---|---|---|---|---|
| 1997 | 32.1 | 53.8 | 7.9 | 4.5 | 1.7 | 757 |
| 1998 | 49.0 | 41.7 | 6.5 | 1.6 | 1.1 | 1093 |
| 1999 | 76.1 | 19.9 | 1.7 | 1.8 | 0.5 | 760 |
| 2000 | 75.8 | 20.3 | 2.0 | 1.3 | 0.6 | 892 |

*Users of advisory services and respondents vary from year to year. Source: Authors from 2001 survey of advisory service users

The advisory subsidy scheme has activated advisers and introduced new types of services for a wider range of farmers. A 1998 survey of program participants found that the percentage of participants using advisory services for the first time was substantial and increasing at 16 percent prior to 1996, 22 percent in 1996, 28 percent in 1997, and 34 percent in 1998. The scheme provides opportunities for farmers to purchase full services at lower cost and has attracted private funding into the advisory services market (see table 2.3).

Providing training for advisers and initiating advisory service development has increased the number of professionals able to do advisory work. In the period from 1997 to 2000, there were 183 certified agricultural advisers, 128 of whom were active service providers in 2000. The economic crisis in Russia and institutional reforms of certification procedures resulted in a decrease in the number of users of individual advisory services after 1999 (see table 2.4).

**Table 2.3. Public-Private Cost Sharing Arrangements for Advisory Services**

| *Year* | *Price limit for contract (EEK)** | *Farmer payment (EEK)** | *Farmer share (percent)* | *Maximum of subsidy (EEK)** | *Comments* |
|---|---|---|---|---|---|
| 1996 | 2200 | 220 | 10 | 1980 | since June 1996 |
| 1997 | 3000 | 300 | 10 | 2700 | |
| 1998 | 1st contract—3000 | 450 | 15 | 4350 | secondary subsidy |
| | 2nd contract—3000 | 1200 | 40 | | since June 1998 |
| 1999 | 1st contract—3000 | 450 | 15 | 5550 | |
| | 2nd contract—6000 | 3000 | 50 | | |
| 2000 | 1st contract—3000 | 450 | 15 | 5550 | |
| | 2nd contract—6000 | 3000 | 50 | | |
| 2001 | 1st contract—4000 | 800 | 20 | 7200 | |
| | 2nd contract—8000 | 4000 | 50 | | |
| 2002 | 1st contract—4000 | 100 | 25 | 7000 | |
| | 2nd contract—8000 | 4000 | 50 | | |

*1 EUR = 15,64664 EEK; 1 EEK = 0.0639 EUR. Source: ARIB Records

The cost-sharing scheme helps farmers with lower income to access advisory services. A survey of 757 users in 2000 indicated that 34 percent had farm business turnover of EEK 60,000 or less, 37 percent had EEK 60-250,000 turnover, 16 percent had EEK 250,000 to 1,000,000, and 13 percent had over EEK 1 million. However, budgetary restrictions and bureaucratic practices have limited farmers' ability to obtain advisory service at the proper time and the cost-sharing scheme has introduced the possibility of more misuse of subsidies. Reimbursing farmers for part of the cost of services, after they have first paid the full cost, allows for timely purchase of services when needed. This also limits misuse of subsidies. At the same time this scheme restricts access to individual advisory service for farmers with lower income.

**Table 2.4. Dynamics of Individual Advisory Subsidy and Private Funding Attracted**

| *Year* | *Number of contracts* | *Amount of support 1000 EEK** | *Attracted private funding 1000 EEK** |
|---|---|---|---|
| 1996 | 1178 | 2 636 | 315 |
| 1997 | 2406 | 5 609 | 583 |
| 1998 | 2894 | 6 655 | 1 463 |
| 1999 | 2576 | 6 050 | 1 674 |
| 2000 | 2350 | 5 639 | 1 542 |
| 2001 | 1134 | 3 561 | 1 495 |

*1 EUR = 15,64664 EEK; 1 EEK = 0.0639 EUR. Source: Authors from ARIB records

The subsidy scheme for individual agricultural advisory services has been a learning process for all sides. The amount of subsidy and the farmers' share have been adjusted over time. The Regional Development Agency has applied a similar subsidy scheme to provision of business advisory services implemented through Business Advisory Centers.

The information flow system (AICC, CIC, RIC) brings the various information and extension activities in rural areas under one umbrella without raising problems of legal ownership. Information services providers have easier links to each other, and those who need information have one network to which they can turn.

## Lessons Learned

*Lesson 1.* Experience with different advisory models has shown that a foreign advisory model cannot be implanted directly into another socioeconomic situation. Every model has to be adjusted to local conditions. Development of various extension models has provided experience and wider understanding of different possibilities for extension setup. This knowledge and practical experience has been the basis for development of Estonia's own extension model.

*Lesson 2.* The task force for AKIS management and coordination has been a critical factor in advisory service market development. The performance of a task force can be improved by wide involvement and networking of stakeholders. This improves quality and implementation of decisions, as human capital available in the governmental sector is limited. Some governmental officials do not consider continuation of Committee for Advisory Services Financing and Advisory Council to be necessary. This has decreased involvement of stakeholders and made the decision-making process less transparent. As a consequence, effectiveness of decisions on AKIS development has decreased as some decisions are neither accepted nor implemented.

*Lesson 3.* Agreement on a strategy and the formulation of a development plan has been another critical factor for advisory services market development. The strategy development process provided a clear understanding of the needs of various interest groups, and of the general direction for development of the agricultural knowledge and information system (AKIS) in Estonia. Still, Estonia does not have public agreement on an agricultural policy that defines the role of advisory and extension services. The lack of an approved strategy document and legislative framework for the AKIS has made the advisory services market more vulnerable. Public sector investments in human and social capital and AKIS infrastructure can be lost, if project-based activities are not institutionalized because of unresolved structural and financial issues.

*Lesson 4.* Extension is a useful tool for implementing agricultural policy. Advisory services have in general developed in line with the structure and needs of the agricultural sector. Still, there are two key requirements for improving advisory services market performance: (a) Establishing structures, institutions, and regulations for advisory services market operations; and (b) tuning the market to needs of the agricultural sector and society (i.e., defining priorities on messages, target groups and dissemination methods.

Analysis of the AICC project on information chains found two weak elements in the information chains in the Estonian AKIS. These were (a) processing of information and putting it into format most understandable for target group; and (b) collection of feedback information on target group needs and message quality, and the use of feedback for decision-making and program adjustments.

Advisory services market development in Estonia has made significant progress, but it has had some serious setbacks. Nowadays, advisers, information providers, and farmers are not completely happy with the situation. Despite the several extension and information schemes underway to support development of viable farms and farmer capacities, there is still a need for urgent measures to strengthen the country's overall advisory capacity.

### Note on the Authors

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# Germany: Privatizing Extension in Post-Socialist Agriculture—The Case of Brandenburg

Uwe Jens Nagel and Kirsten von der Heiden

Following the re-unification of Germany, the extension system of the former German Democratic Republic (GDR) radically changed as a consequence of the new political and economic situation in East Germany. Reforms started in 1990 while the GDR still existed as an independent state, came to a first round completion two to three years later in a unified Germany, and have continued as a process of adjustment until today.

Although in the western part of Germany organized extension has always been decentralized and rather diverse, the situation in the former German Democratic Republic (GDR) was, at least superficially, more uniform. Extension was an integral part of an overall system promoting socialist agricultural development under the direction of party and state officials (Ehlers 1991). However, within this framework activities adapted to the individual needs of cooperatives and state farms were frequently possible, including direct contacts between farms and universities, research contracting, and hiring of specialists. The quality of extension advice received from various organizations until 1989 is still regarded as excellent by today's farm managers (Bokelmann et al. 1996). Extension was, of course, free of charge.

The re-creation of states in eastern Germany made the existing extension organizations and arrangements obsolete, regardless of their effectiveness and acceptance by farmers. Of the five new states, two (Brandenburg and Sachsen-Anhalt) opted, from the very beginning, for a privatized system subsidized by the state. At the time, this was not seen as a way to downplay the role of extension. On the contrary, in 1992 the Brandenburg ministry defined agricultural extension as an effective supporting instrument for influencing the change process in agriculture in the sense of the “Brandenburger Weg” or “Brandenburger Path.” Extension was meant to support knowledge transfer and knowledge based farmers' activities, as well as motivating farmers to join the change process. However, it was explicitly a bottom-up approach with decision-making resting with the farmer. From the very beginning, an organizational set-up was envisaged which would keep government service as small as possible (MELF 1992).

Major elements of the reform included: (a) advisory service provision by private firms or persons; (b) extension costs borne by farmers but partly subsidised by the state; (c) full privatization within ten years; and (d) extension advice provision only to organized groups. In order to be eligible for subsidies, farmers could organize in two possible ways:

1. *Initiatives taken by farmers*. Farmers could form a group ("ring") and hire an extension agent to work exclusively for the group. Specialists and generalists could be hired and subsidies could be provided for up to one agent per 20 ring members.
2. *Initiatives taken by extension agents*. Extension agents could organize a group ("extension association") to which they would offer their expertise. Agents could not work exclusively with such an association and would often be joined by other specialist colleagues. One full-time extension position could be subsidized for each 20 association members.

## Impacts of Reforms

A decade after the first reform measures were put into practice it would be worthwhile to do an in-depth study of the impacts, both in quantitative as well as qualitative terms. Such an impact study is still lacking, but there is soft data from focused analysis as well as information from expert interviews. In 1993, a comparison of different extension organizations in Germany led Jochimsen (1993) to hypothesise on the strengths of the Brandenburg system. These strengths are: (a) low budget requirements for the state; (b) no role-conflict between advisory and regulatory function; (c) high flexibility of personnel; (d) farmers decide on extension function ("make or buy"); and (e) highly individualized extension.

By 1996, farmers and extension agents were still cautiously positive toward privatization (Bokelmann et al. 1996). However, a few years later results from a qualitative situation analysis (Boeckmann et al. 2002; Siebert et al. 1999) revealed much disillusionment and scepticism with privatization. Some farmers and extension workers interviewed explicitly regretted not having adopted the Chamber of Agriculture system of North-Rhine Westphalia. Farmers did see the need for users to take over at least part of the costs of extension, but felt that clients should not have to pay more than 60-70 percent of the extension costs, and that financial subsidies by the government should cover about 30-40 percent. Using Jochimsen's (1993) criteria, the situation in 2002 may be described as follows.

*Low budget requirements for the state***.** With co-financing provided by the European Union, the state originally offered a phased subsidy program starting at 90 percent of extension costs and gradually declining to less than 50 percent. However, available resources from both Brandenburg as well as from the EU drained more rapidly than planned and, consequently, extension subsidies were reduced to practically zero in 2002.

*No role-conflict between advisory and regulatory function.* By fully separating the two functions, role conflicts do not occur. However, at the same time the state has no formalized structure to intervene in rural areas when it comes to public goods issues.

*High flexibility of personnel.* The rapid reduction in government subsidies has had serious repercussions on extension personnel. As large numbers of farmers dropped out of the system, the client base was sharply reduced. Older extension personnel reacted by accepting reduced incomes, since for most, early retirement was not an acceptable alternative because of extremely low retirement benefits. Some of the younger staff left and those remaining are doing high-quality work with selected large farms. Under these conditions, recruitment of new staff has been difficult.

*Farmers decide on extension ("make or buy").* A large number of farmers reacted to privatization without subsidies by dropping out of the system. This was especially true for family farms and for practically all part-time farmers. However, this decision was much more an "I would like to have it but cannot afford it" decision rather than a true "make or buy" decision.

*Highly individualized extension.* With relatively few extension consultants advising relatively few large-scale farms, the system is indeed highly individualized. The consequences for issues that go beyond the individual farm will be discussed below. Benefits accrue to those who can afford this type of consultancy, and, in this sense, there is no discrimination against female farmers or farm managers. The "knowledge market" is open to everyone, including international specialists, such as Dutch horticultural advisers.

## The Question of Sustainability and Replicability

If sustainability is defined in purely economic terms, the system may well be called sustainable, at least for the foreseeable future. Government has greatly reduced its extension expenditure, economically viable farms are definitely able to pay for consultancies, and large-scale farming is firmly established in Brandenburg as well as in other States of the former GDR. However, if we add social and ecological dimensions, the system's long-term stability can be seriously questioned. Under given conditions (zero subsidies), the extension system cannot deliver public goods services and excludes, for all practical purposes, smaller farms. Sustainable rural development, which aims at both preservation of natural resources and a diversified farm structure, is the explicit vision of national German and of EU agricultural policy. It is our hypothesis that the present advisory system will not be able to contribute significantly to this goal (Nagel and Heiden 2002).

The question of replicability and scaling-up is thus answered: depending on the objectives of agricultural policy the Brandenburg model may be worth copying or not. If short-term budgetary problems force governments to reduce spending for non-formal educational programs, full privatization may be the right choice. It may also be applicable in situations where small scale farming does not exist (anymore) and in countries such as the Netherlands where governments are able to finance extension services on general interest topics through special programs (see Proost and Duijsings 2000 for details on the Dutch system.

## Lessons Learned

The specifics of a reform cannot be understood unless related to the specific historical and political situation, which brought it about. Privatizing and commercializing extension was a dramatic about-face in extension policy in the early 1990s and a short look at the situation a decade ago may shed some light on why this approach was chosen. Internationally, privatization was seen by some as a panacea to the shortcomings of discredited public extension services (Rivera and Cary 1997). Politically, de-regulation of the former socialist economies called for putting more responsibilities with private persons and firms. With regard to extension content, virtually all relevant actors agreed that the focus should be on farm economics, as farmers were believed to be sufficiently knowledgeable in production technology and the environment not an issue. An end to subsidies from Bonn or Brussels was not in sight.

The lesson to be learned may be trivial and controversial at the same time. *Framework conditions for reform may change, in some cases rather rapidly, and changes may jeopardise reform measures*. Re-adjustment of an extension organization attributed to the lack of finances will very likely lead to a reduction in its social services, whereas individualised services may easily be commercialized and survive. Controversy relates to the degree and speed of change. Radical organizational change may be as counterproductive as organizational stand-still. It is virtually impossible to foresee and take precautionary measures to prevent negative consequences for farmers and extension personnel alike. Being able to cope with the consequences of radical change requires enormous resources – which leads us to our second lesson learned.

*Models for reform may be fascinating and deceiving at the same time.* They can only be copied if the basis for reform can also be guaranteed. As a model, the Brandenburg ministry had chosen the reformed extension system of the Netherlands (Schwartzer 1998) without, we may critically add, being able to provide the necessary conditions that apparently have made it so successful. Internationally, the market-oriented foundation Dienst Landbouw Voorlichting (DLV) has been heralded as the foremost example of the successful privatization of extension, issues like "lean organizations" and "demand driven services" being in the foreground. Questions of sustainability and quality of the relationship between extension and its clients are, to our knowledge, not used as yardsticks. When extension was privatized in Brandenburg there was no such vision either.

One may ask why the Brandenburg version of the Dutch reform has been less successful, even in the reduced sense of organizing a viable commercial consultancy system. The most important difference may relate to the availability of resources at all levels. Put rather bluntly, while the Dutch extension system was privatized under conditions of stability and abundance, Brandenburg's decision was taken in times of political, economic, and social upheaval characterized by a dearth of financial resources.

*The third lesson concerns the fact that extension has a role of providing advice that goes beyond information individually demanded by a farmer.* In Brandenburg, the lack of resources has had disastrous consequences for public goods extension. The "project approach" practiced in the Netherlands depends on the willingness and potential of governmental or non-governmental organizations to sponsor activities of collective interest. Environmental issues, with the exception of organic farming consultancies, tend to be neglected in the present system. In a general sense, conventional farmers as well as extension agents are open to dealing with environmental issues, but are not necessarily very enthusiastic about this. They are willing to pay 60-70 percent of the cost of conventional extension, but feel that agro-environmental extension activities should be completely financed by the government, as they concern topics that benefit society as a whole.

*A fourth lesson has to do with networking and linkages*. Privatizing and commercializing extension is meant to increase organizational flexibility, reduce bureaucracy, foster professionalism, ensure client orientation, and enable a truly participatory approach by performing only those tasks directly demanded by clients. However, radical changes tend to disrupt existing networks and much care has to be taken to re-weave the broken nets. Linkages between private sector consultancy firms and non-commercial organizations (governmental or nongovernmental) are difficult to establish and maintain; as they do not function according to market mechanisms. They are largely informal, depending on goodwill and personal engagement of actors, and potentially unstable.

With full privatization the state government has relinquished an important tool for farm level implementation of rural policy. Elsewhere, this may be intentional and a consequence of no longer treating farmers as a privileged economic group. However, in the case of Brandenburg a lack of funds that led to an almost total disruption of this linkage. The state has also given up direct responsibility for the so-called "socio-economic" extension as well as for matters of extension education and training. Formerly, public extension services had a key role in training advisory personnel, especially with regard to those competencies that are not necessarily part of university education. Though commercial firms may place a high value on staff qualifications and training, their resources are more likely to be spent on specialist services than on holistic approaches. However, it is the latter that has characterized quality public extension.

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# Pakistan: Privatization and the Crisis of Agricultural Extension—Caveat Emptor

Andrew Davidson

Agricultural extension is in crisis throughout the world. In this period of fiscal crisis and budget constraints, especially in a country like Pakistan already burdened with a large debt load, it is suggested from a variety of quarters that governments should divest themselves of a number of functions in an effort to streamline government and reign in spending. Accordingly, public extension, with its comparatively high cost, lack of efficiency, and low-quality services, is faced with a number of seemingly intractable problems that critics contend can only be remedied by a thorough overhaul, the type best achieved through its privatization and commercialization (see Kidd et al. 2000; Rivera 1996). Pakistan is no exception. Unfortunately, there is a paucity of evidence detailing the effects of the privatization of agricultural extension in developing countries, particularly with respect to its sociological dimensions and implications. This is especially worrisome in countries like Pakistan where market-driven solutions may worsen the information gap and further disadvantage a large sector of the rural economy.

The lacklustre performance of agricultural extension has been an ongoing concern of every government in Pakistan since the country's inception. Following the failures of several extension models, Pakistan's public agricultural extension services were reorganized into the Training and Visit (T & V) system in the late 1970s. The T & V system has fared little better. Faced with a large debt load, the World Bank recommended that Pakistan privatize its agricultural extension services (Khan 1997; Malik 1997{xe "Khan 1997"}). In 1988 the National Commission on Agriculture, citing the continued inability of public extension to appreciably increase agricultural productivity, recommended that the private sector assume responsibility for supplying farmers with agricultural inputs, such as fertilizers and pesticides, commercial activities already well-integrated into the market place. Novartis (better known as Ciba in Pakistan), advantageously positioned in global, agri-business has since played a leading role in this capacity, and is now also engaged in the provision of agricultural information.

At present public and private agricultural extension services often provide competing, overlapping, and conflicting programs. This is especially evident in cotton, Pakistan's main cash crop and second highest earner of foreign exchange after rice. Nevertheless, the privatization of extension services, at least in certain forms, may not provide the solution to Pakistan's agricultural problems, particularly in reaching smaller-scale and resource-poor farmers.

This case study explores the efficacy of privatizing agricultural extension in a country, where over 80 percent of farmers cultivate less than 12.5 acres of land. It was deemed necessary to examine the perceived effectiveness of both sectors from the perspective of the ultimate end-users – the farmers and determine if there is a bias in the type of farmer with which each sector works.

## The Pakistan Case in Context

Pakistan is currently the seventh most populous country in the world with a population of 135 million and a population density of 164 persons per square kilometer (Government of Pakistan 1998) Nearly 57 percent of Pakistan's population is directly dependent on primary agricultural production (FAO 1991) Pakistan's agricultural sector occupies an important position in its economy and contributes more than 25

percent of GDP, employs about 44 percent of the labor force, directly sustains 75 percent of the population, and accounts for 30 percent of exports (Government of Pakistan 2001; Government of Punjab n.d. More importantly, it accounts for about 50 percent of total foreign exchange earnings (Dawn 1995The importance of agriculture to economic growth and the well being of Pakistan's people cannot be overstated.

There are reasons for concern. Despite its rich fertile alluvial soils, the world's largest canal irrigation system, a favourable climate, an effective agricultural research organization, and an industrious farming community, Pakistan currently must import agricultural commodities to meet the needs of its growing population. If present population growth continues, in the near future Pakistan will face a shortage of 24 percent in wheat, 62 percent in oil seed, and 20 percent in sugarcane (Pakistan News Service 1997). On top of these shortages, cotton, Pakistan's main cash crop, is facing serious pest infestations that have caused a record shortfall in its production over the past several years. Pakistan will have to generate significant amounts of foreign exchange in order to meet its agricultural shortfalls. It is in this context that extension assumes an important role in meeting national needs.

## Reform Measures

In 1988 the Government of Pakistan appointed a commission to look into its poor agricultural performance and make recommendations to the government. In its report, the commission suggested the inclusion of the private sector in reshaping agricultural extension: "The most important shift needed in the provision of inputs is to encourage the private sector to provide the total package and not just the sale of a specific input ... similarly, the companies selling insecticides can offer a total plant protection service, consisting of agronomic, biological and chemical protection." (Government of Pakistan 1988 418).

In the report's aftermath, the private sector has become increasingly involved in agricultural extension. Many international firms such as Ciba now supply farmers with agricultural information along with inputs, especially on plant protection aspects of crop husbandry. Without question, the prominent role of public extension in Pakistan is declining, but how the clientele feel about this change needs to be explored.

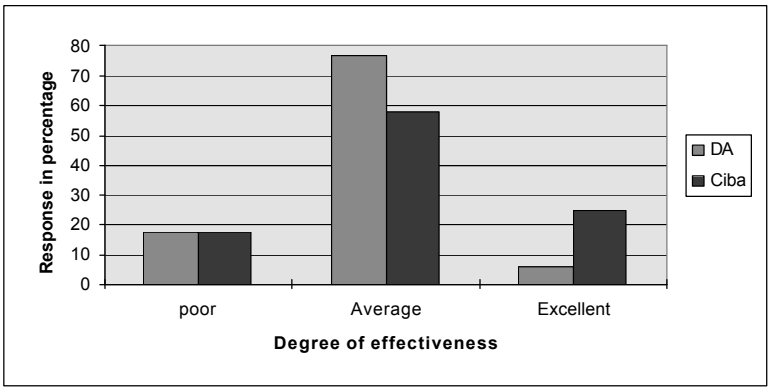
The duplication of agricultural services by the public and private sectors is especially evident in extension activities oriented toward cotton. Today, Pakistan is the fifth largest cotton producer in the world, with 3.15 million hectares under cultivation (Poswal and Williamson 1998). However, recent years have seen an increase in cotton pest infestations, primarily because cotton has a longer growing period than other field crops and has a specific fruiting pattern that increases its vulnerability to pests and diseases (Baloch et al. 1994). Cotton has a higher cost of production than any other crop with 66 percent of the total cost of production per hectare incurred on chemicals for plant protection (International Cotton Advisory Committee 1994).

Ciba was selected for this case study, as it is one of the largest providers of private extension in Pakistan. Moreover, Ciba specializes in pesticide for control of cotton pests and pesticide use in cotton now accounts for about 70 percent of all pesticide consumption (Saarcnet 2001). For these reasons, and given the importance of cotton to Pakistan's economy, Ciba was considered the most relevant example of private extension.

*Impact of the Reforms*

The effectiveness of extension work carried out by the Department of Agriculture and Ciba comprised the main dependent variable for this study (Davidson and Ahmad 2002; Davidson et al. 2001). Respondents were asked to rate the effectiveness of both agencies on a Likert-type scale (ranging from 1 as poor to 5 as excellent), considering the extension advice relating to technical information on control of cotton pests. After establishing the unidimensionality and reliability, a scale for both agencies' extension advice was constructed by summing up the rating score given to each agency by respondents. A bar diagram showing the percentage of respondents' perception of extension effectiveness (poor, average, excellent) is presented in Figure 2.1.

**Figure 2.1. Contact Farmers' Perception of the Effectiveness of Public and Private Extension Systems**




Note: The public system is the Department of Agriculture (DA). The private system is Ciba. Source: Davidson and Ahmad 2002

Contact farmers consistently rated Ciba's performance (3.3) higher than that of the Department of Agriculture (3.1). Overall farmers rated the effectiveness of the Department of Agriculture's extension advice as average and rated Ciba's as average to excellent. Preference for Ciba is probably reinforced because its extension personnel not only impart technical information, but also provide for the delivery of agrochemicals (e.g., pesticides, fertilizers). As noted by Schwartz (1994: 10), "a reliable sales representative who also conducts extension activities is likely to be valued by farmers." On a cautionary note, Ciba concentrates on extension activities for which they have a product to sell. Ciba does not focus on Cotton Leaf Curl Virus, for example, as this disease is incurable. The Department of Agriculture, on the other hand, has initiated a campaign to educate farmers about possible preventive measures to lessen severity of attacks (Muhammed and Sipraw 1995). In general, the Department of Agriculture can be more flexible and inclusive in its extension advice as it is not constrained by the need to market inputs.

Correlations were used to identify any associations between selected characteristics of farmers and their farm operations (see table 2.5). Four characteristics proved significantly related to perceived effectiveness of extension advice such as farmer's age (i.e., negative) and education (i.e., positive) with the Department of Agriculture, and size of landholding (i.e., positive) and acres of cotton cultivation (positive) with Ciba--there is generally a high correlation between the last two variables. In general, farmers rating extension advice favorably clearly understood the message and felt that the advice given

**Table 2.5. Correlation Matrix of Key Selected Variables**

| *Variable* | *1* | *2* | *3* | *4* | *5* |
|---|---|---|---|---|---|
| 1. Age | -- | | | | |
| 2. Education | - .19 | -- | | | |
| 3. Acres of cotton cultivated | - .01 | .16 | -- | | |
| 4. Landholdings | .09 | -.13 | .73** | -- | |
| 5. Extension advice by Dept. of Agriculture. | -.33* | .79** | .13 | -.13 | -- |
| 6. Extension advice by Ciba | .01 | .05 | .76** | .85** | .05 |

Notes: * p<.05 * * p<.01. Source: Davidson and Ahmad 2002

was largely effective. These are in effect an outcome of education (i.e., understanding) and landholdings (i.e., financial ability to adopt).

Additional analysis of intra-group variations yielded interesting differences in the characteristics between those favoring the Department of Agriculture and those preferring Ciba. Contact farmers rating the Department of Agriculture's advice as excellent tend to be younger, operate smaller farms, and have higher education than those rating it poor. In many respects this is not surprising; after all, the mandate of T&V is to serve the smaller farmers (although not too small). In addition, public extension agents probably have a better rapport with younger more educated farmers. Farmers with large landholdings are much more likely to have class and caste differences with public extension agents and being older, these social divisions are difficult to transcend.

In the case of Ciba, educated farmers with smaller farms reported the effectiveness of Ciba's extension advice as poor, whereas those with less education and larger landholdings recorded Ciba's performance as excellent. Given Ciba's interest in disseminating (selling) its products, it is not surprising that larger landholders rated its extension services favourably, as Ciba's field personnel would certainly provide quality service to large landholders. It is more cost-effective for an extension worker to convince a farmer with 400 acres of cotton to use Ciba's products for plant protection than to contact numerous smaller farmers who probably cannot afford the services of Ciba. In other words, catering to larger farmers assists Ciba's extension personnel in achieving sales targets and, by facilitating the company's sales, earns a field agent a bonus or promotion. In addition, larger resource-rich farmers probably feel they do not need extension advice but are more interested in directly procuring agricultural inputs.

Stepwise regression analysis was also carried out to establish the best predictors of perceived effectiveness of the Department of Agriculture and Ciba. In the deletion process, only two explanatory variables (age and education) turned out to be statistically significant at the .05 level for the Department of Agriculture. Together these two variables explained 66 percent of the variance in the perceived effectiveness of the extension advice given by the Department of Agriculture, although education alone was a better predictor. With respect to Ciba, size of landholding and acres in cotton explained 76 percent of the variance of perceived effectiveness, whereas size of landholdings was a better predictor.

The results of the correlation analysis concomitant with regression analysis highlight biases in the selection of contact farmers by both private and public extension systems. Both systems rely on a strategy of using contact farmers, which severely hampers the diffusion of information. The private sector extension is more concerned with serving the needs of larger, resource-rich farmers to the exclusion of other farmers because of its interest in generating profits. Public sector extension is biased towards better-educated farmers, although not necessarily those with large landholdings. Neither sector appears concerned with the needs and problems of non-contact farmers. Instead, it appears that smaller-scale, more resource-poor farmers are being neglected and marginalized (Davidson et al. 2001). Indeed, the lack of appropriate, relevant, flexible, and location specific information in the wider farming community is a major impediment to increasing Pakistan's agricultural productivity.

### *Sustainability of Reforms*

Ciba's control measures for cotton pests were perceived to be more effective than those of the Department of Agriculture. However, the private sector concentrates its efforts on selling its products to the farmers through its extension service. Thus, it is not surprising that it focuses its activities on farmers with large scale operations, as these are the ones with the ability to purchase its inputs. Of course, delivering these inputs to the farm gate enhances its perceived effectiveness. The Department of Agriculture too is caught

on a "treadmill of results" and consequently concentrates its efforts on better educated farmers as its extension agents probably find that they have a good rapport with these farmers (fewer caste and class differences). In either case, each sector is concerned with results and with how many farmers adopt their advice.

Small and medium-size farmers, the bulk of them operating farms of less than 12.5 acres, make up the majority of the farming community. The overwhelming majority of these farmers fall under the category of non-contact farmers; that is, they have no formal contact with either public or private agricultural extension agency. In the extension literature, there is an overriding assumption (or rationalization) that these farmers will be able to obtain information from contact farmers. However, contrary to popular conceptions most non-contact farmers reporting pest infestations in our study area sought information on pest control, primarily from pesticide dealers, followed by the Department of Agriculture, neighbours, and Ciba. None reported obtaining information from contact farmers.

The misrepresentation of agricultural inputs by agrochemical dealers presents an especially serious concern, particularly for non-contact farmers dependent on these dealers for information. Many farmers indicated that pesticide dealers had sold them a product that was adulterated or out of date. In other instances farmers complained that pesticide dealers pressured them to purchase products regardless of whether or not it had been recommended for the pest infesting their cotton fields. Still, they bought the chemical as the dealer counseled that he knew best, and that failure to heed the advice would cost the farmer his crop. When pesticides failed to work, dealers told farmers they did not use the chemical properly, that it was not the fault of the chemical.[7] These practices cause a two-fold loss in the form of money and cotton production. Despite the farmers' misgivings and previous bad experiences, most admitted that they still go to the pesticide dealers because there was no other source of information and products to control pests. They felt they had no other viable options.

Given the overall lack of success of the T and V system, the Ministry of Agriculture changed its extension strategy in 2000[8]. Although not abandoning the T & V system per se, it modified it significantly. Contact farmers are no longer the primary information conduit in the extension system. Instead, the public sector now deploys agents to organize group meetings, as the preferred forum for disseminating information. This is based on the reasoning that group meetings attract and reach more farmers, each of whom can in turn function as a "contact farmer." Although this is certainly an important first-step in refashioning extension activities, it still does not ensure that those in need of information and assistance receive it. Neither does it address biases underlying selection of farmers for inclusion in groups. Indeed, this goes to

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[7]Reliance on agrochemicals also raises grave health concerns. Contact and non-contact farmers alike 'have been trapped on a pesticide treadmill of more frequent applications' (Poswal and Williamson 1998:12). Two of the most commonly used chemicals on cotton are monocrotophos and methamidaphos, organophosphate chemicals that have been classified as extremely hazardous by the World Health Organization. Many farmers are unaware of their safe use or do not have access to safety measures needed to minimize risks from their use such as respirators or protective clothing. Moreover, exposure to toxic chemicals falls more heavily on females through their exposure to these chemicals in their work treating the cottonseeds and in harvesting (Davidson and Ijaz 1997).

[8]The push to reorganize and decentralize agricultural extension was been put on hold following instability in the country after September 11, 2001.

the heart of the failure of extension in Pakistan. Most non-contact farmers felt marginalized because of their caste position, small properties, and low incomes. The recent shift in extension delivery methods by the Department of Agriculture, while promising, does not guarantee that farmers will have better access to agricultural information. If anything, without an appreciable change in the under-riding development philosophy, it will probably mean more of the same.

## Summary of Findings

In sum, the majority of the farming community is not yet reached by either government or Ciba extension services. Aside from not have ready access to up-to-date and relevant information, many of these farmers are susceptible to exploitation by pesticide dealers. Our findings imply that there is an urgent need to rethink agricultural extension services in Pakistan. Not only must this take into account farmers' needs and well being, but it must ensure sustainable agricultural practices that are more cost effective in the long term and inclusive of environmental and health imperatives. Unquestionably, there is a need to reconsider Pakistan's agricultural extension services, but privatization may not be the best solution to "get agriculture moving." The privatization or commercialisation of extension may be useful, but will require tested strategies that are location specific, multidimensional, gradual, and flexible if resource-poorer farmers are to benefit from the changes (Kidd et al. 2002).

*Research Findings*

- course of actions is decided upon, using these as yardsticks in addition to conventional economic indicators The public and private extension systems offer competing, conflicting and overlapping programs.
- Both private and public extension relies on a strategy of using contact farmers, which severely limits the diffusion of information.
- Private sector extension is more concerned with serving the needs of larger, resource-rich farmers because of the primary interest in generating profits.
- Public sector extension is biased toward better-educated farmers, although not necessarily towards those with large landholdings.
- Neither extension system seems capable of formulating broad based inclusive methods designed to mainstream marginal farmers.

## Policy Implications

- A simple strategy of privatizing agricultural extension will not be sufficient to provide the technology and support required by the majority of farmers.
- Policymakers should be aware that those farmers who are excluded from public and private extension are forced to seek information from input dealers who may not be well-informed or properly motivated to provide appropriate assistance.
- Urgent attention is required for rethinking extension strategies for Pakistan so as not to exacerbate the growing information gap between rich and poor farmers.
- Policymakers need to also consider environmental and social justice outcomes in whatever.

## Conclusion

Despite decades of extension efforts, the majority of farmers continue to struggle at the margins. Their livelihoods are complex and have to adapt quickly to unpredictable economic and environmental change (Petty and Scoones 1995). If there is to be any appreciable difference in their lives, the debate over the efficacy of agricultural extension should be from the perspective of how to assist farmers learn how to responsibly and profitably cope with the complex world in which they live. Who provides that help is secondary at best. Equally important is how that help is organized and what processes are used to implement it. This brings us to the need to clearly articulate a development ethic, as ethical deliberation is, after all, an important part of human choice (Raiser 1997). Whether privatization or any other strategy to boost food production will stimulate agriculture and alleviate rural poverty depends on the economic, political, and cultural rules that people make. These rules determine who benefits as a supplier of production inputs, whose land and crops prosper, and who gets food and at what price.

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# South Africa: Public-Private Partnership for Extension Delivery

Martin J. Eweg and Michelle E. Owens

South Africa is a country of diversity, which has recently emerged from a society of separateness, based on race and culture, to one that since 1994 has had to participate in a global society. People of different groups were compelled by laws to have separate health and education facilities, and even were required to live in designated areas with little opportunity for social and professional exchange. The post apartheid period of growth has provided opportunities for reparation and reform that is encouraging unity and inclusion in many areas. South Africa is now a successful world model of political and social reform; having been on the brink of civil revolt and anarchy less than 10 years ago.

The first sugarcane fields in Kwa-Zulu-Natal province of South Africa were established in 1848, the first shipment of sugar followed in 1853, and the first black owned steam mill was established in 1865. In 1925, the predominantly white, commercial growers established the Experiment Station (the research division of the South African Sugar Association) with a primary objective of developing new varieties with characteristics of high sucrose and disease resistance. Sugar research, marketing and extension funding came from a levy paid to the South African Sugar Association for every ton of cane produced by growers and every ton of sugar processed by sugar millers. Black small-scale growers began contributing to levy in the early 1970s, but provision of informational needs for these black small-scale growers was the responsibility of the Department of Agriculture and Environment Affairs. Unfortunately this Department had little access to current research and production information even though the black small-scale growers were contributing to the South African Sugar Association levy.

## Reform Measures

In 1994, the apartheid government was replaced in a democratic election process. Also in 1994, as a result of deregulation measures within the sugar industry, there was a change in the funding of extension services for sugar growers. The change resulted from the fact that millers were not inclined to contribute to funding extension, which they perceived to be a need only for growers. Therefore, commercial growers decided to pay for extension on a tonnage basis through an additional extension levy. The South African Sugar Association did not have sufficient resources to provide an effective extension service for the emerging small-scale grower sector in Kwa-Zulu Natal, but made their research facilities available to all growers, including small-scale growers' representatives on the South African Sugar Associations Experiment Stations Steering Committee. At the same time, the Experiment Station approached the Department of Agriculture and Environmental Affairs to form a partnership for the provision of extension services to small-scale growers. The South African Sugar Association Experiment Station proposed to join in partnership with Department of Agriculture and Environment Affairs to assist 46,000 small-scale sugar growers in the province.

The original 1995 Joint Venture agreement required that the South African Sugar Association's extension program and the Department of Agriculture and Environment Affairs extension structures interact to deliver sugarcane extension services to small-scale sugarcane growers in the province. The Joint Venture agreement operates with four South African Sugar Association Experiment Station extension staff as sugar Extension Specialists, and 36 Department of Agriculture and Environment Affairs Agricultural Technicians. The Sugar Association extension specialists provide the technical expertise and the Department of Agriculture and Environment Affairs staff function as the field extension agents.

The impetus for promoting sugarcane production amongst the various stakeholders was as varied as the stakeholders themselves. Formal partners in the Joint Venture, the South African Sugar Association and the Department of Agriculture and Environment Affairs are motivated to improve production of all sugarcane producers in the province. However, they are also concerned to improve the profit or economic bottom-line of their producers and to improve the social situation of the province. There are also several informal partners in this Joint Venture, including mill staff, commercial growers, the medium-scale Indian growers, Mill Cane Committees, farmers organizations, input suppliers, contractors, tribal authorities, and municipalities. These informal partners have many and varied reasons for wanting the Joint Venture to succeed. Yet, the common thread that brings them all together is the desire to improve the production of sugarcane in the region and provide social and economic stability for rural producers.

The Joint Venture agreement required that the South African Sugar Association and Department of Agriculture and Environment Affairs extension structures interact to deliver sugarcane extension. The Sugar Association, a non-profit, private organization funded by sugar growers and millers, has a flat management structure with a high level of accountability on budget. Conversely, the Department of Agriculture and Environment Affairs is a public ministry that has a rigid empirical structure with all accountability being at the senior levels. Its system of administration requires considerable effort and time delays between initiation of a proposal and delivery of a service. Sub Directorates offer support services to the regions, but these are often bureaucratic in nature with little autonomy and do not allow for efficiency or effectiveness. This system varies little from that which operates in many national public sectors around the world.

Currently this Joint Venture provides for: (a) the Department of Agriculture and Environment Affairs to contribute the total cost of 36 Agricultural Technicians, who remain DAEA staff and operate within their management structures, and (b) the Sugar Association Experiment Station to provide four extension specialists, who remain in the management structure of the Sugar Association. Salaries and related costs of these specialists are shared between the Department of Agriculture and the Sugar Association on a 50:50 basis. The contract also obligates the Department of Agriculture to provide office and support services to specialists based in the regional offices of the department.

## Impact of the Partnership, Structure and Information Flow

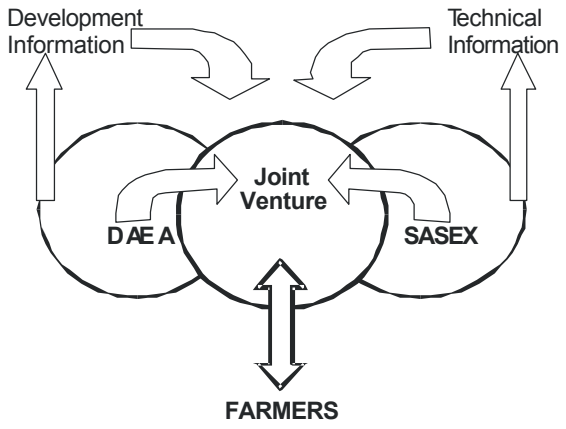
Prior to development of the Joint Venture, information for small-scale growers was provided in an uncoordinated fashion from the Department of Agriculture, the Sugar Association, mill staff, contractors, and input suppliers. In improving extension services to small-scale growers, the Joint Venture has had a substantive impact on the flow of information both from researchers to the farmer and from the farmer to the researchers. This has occurred primarily through the development of a separate communication structure that incorporates structural characteristics of both partners, which bring their respective strengths to the information system. The structure of the Joint Venture is separate from the two partners, but both are able to feed information into the new extension structure (see figure 2.2). Information flowing to farmers now comes from the Joint Venture in a unified fashion and not from two independent sources. As indicated by the diagram, the Joint Venture also provides feedback information flows from small-scale growers to both Joint Venture partners.

Additionally, in some locations, the mill staff members provide information through or in coordination with this new communication structure. The enthusiasm of the small-scale growers to improve sugarcane production is highest in areas where the information flow is coordinated between Department of Agriculture and Environment Affairs, South African Sugar Association Experiment Station and mill staff. And in some of the best cases, the Research, Development and Extension Committees are working to bring contractors and input suppliers into this communication structure. Once a communication structure is developed, other stakeholders can use the structure for information delivery to rural farmers.

## Meetings and Reporting

The monthly Research, Development and Extension Committee meetings at each mill are a good example of how the formal and informal partners in the Joint Venture are able to come together under the same umbrella to discuss common problems and issues. Participants find the monthly Research, Development, and Extension Committee meetings to be constructive and useful. All extension staff from the South African Sugar Association Experiment Station, the Department of Agriculture, and the mill can explain their work plans and discuss issues of common interest. Groups that have an active Research, Development, and Extension Committee have few problems with implementing the Joint Venture; groups not holding these meetings have long lists of problems with sugarcane production in their areas. Areas where small-scale growers have improved sugarcane production the most are also the locations where Research, Development, and Extension Committees meet regularly with full participation of stakeholders.

**Figure 2.2. Information Flow**




Source: Authors

## Extension Materials

In addition to the Joint Venture structure, improved information flow can also be attributed to the development of better extension materials. Poster training modules and vernacular newsletters developed by the South African Sugar Association Experiment Station team are greatly appreciated by all stakeholders. Materials are developed in collaboration between the Sugar Extension Specialists and Agricultural Technicians. Small-scale growers report that field sessions are more informative and interesting with the posters. There is overwhelming support for the posters by the Agricultural Technicians, who report that the posters are useful in the field, but sometimes have too many words and not enough pictures. Scripts provided to the technicians along with the posters are also greatly appreciated, as these aid in ensuring consistency of information delivery. To date, all extension materials for the Joint Venture have been developed by the South African Sugar Association Experiment Station.

## Stakeholders - Small-Scale Growers

Where the Joint Venture has been successful, it has created an atmosphere of hope among the small-scale sugarcane growers. These small-scale growers are producing more sugarcane with higher sugar content and earning more money than prior to this reform in extension delivery. As a result, these growers are hopeful of further improvements in their management, production, and monetary returns from their sugarcane. Neighboring farmers are also becoming interested in the information and technology being offered by the technicians. It would be destructive to both the social and economic development of the provinces to eliminate support for the Joint Venture at this time.

When growers were asked what they would do if their Agricultural Technician was reassigned to a different area, they replied that they would simply get another. It has been suggested that the Joint

Venture is creating a dependency of the small-scale growers on extension services. This may be true to some degree. As farmers and groups improve their agricultural knowledge, they should begin to demand more information and services. Then the farmers and groups should begin to develop more organizational and leadership skills (possibly through research development and extension committees) in order to be able to access required information on their own. The fact that some small-scale growers are already demanding more information on varied topics (bookkeeping, market gardening, syndicate farming) is a very healthy sign that they are already looking to take more control of their own development.

## Stakeholders - Agriculture Technicians

There is a clear difference in the level of enthusiasm of various Agricultural Technicians. This can, to a large extent, be directly correlated with the success of the Joint Venture in their area. Where the Joint Venture is working well, technicians are fully committed to their work and appreciative of the training and support afforded them through the Joint Venture. In particular, they appreciate the monthly refresher courses and training materials provided. Due to their involvement with the Joint Venture, they receive priority in travel for their work programs and are encouraged to do their jobs well. Some of the more enthusiastic technicians refer to the South African Sugar Associations Experiment Station as "our" research station, even though they are employed by the Department of Agriculture and Environment Affairs.

Two issues raised by the technicians are transparency and accountability. Agricultural technicians do not understand the respective responsibilities of different stakeholders, do not know who pays salaries of the various members of the Joint Venture, and are unclear as to the reporting structure of the Joint Venture. Most view reports as only additional workload and do not identify the reports as being useful to their work programs or professional development. The selection of Department of Agriculture technicians to work in the Joint Venture is uncoordinated and unclear. There needs to be more transparency in selection criteria, processes for selection, and guidelines for removal of poorly performing technicians.

## Stakeholders - Head of Department

All technicians are required to prepare monthly progress reports, but only those in the Joint Venture do so with any regularity, primarily due to the additional supervision of the Sugar Association's Sugar Extension Specialists. The Department of Agriculture and Environment Affairs district staff indicate that these reports make their workload easier to manage, as they are better informed of the work of their technicians. A few of the district heads are trying to instill this same reporting discipline in all technicians in their districts.

## Stakeholders - Informal Partners

The mill extension staff members are generally supportive of the Joint Venture agreement and view the improved delivery of extension information as a way to make their own job of cane procurement easier. Because the mill extension staff can use the communication structure of the Joint Venture, this gives them more time to focus on coordinating delivery of sugarcane to the mill. The Joint Venture, specifically the Research, Development, and Extension Committee meetings and newsletters allow mill extension staff to disseminate their own information to small-scale growers more timely and effectively. Many of the mill extension staff report that they have a more positive reception from small-scale growers due to the fact that they are part of the process of delivering coordinated information.

The Mill Cane Committee is a local, political body representing farmers within the sugar industry, and employs Development Officers at each mill. The Development Officer provides the administrative connection to local growers' organizations, facilitates the taking of Mill Cane Committee minutes, prepares agendas, and arranges the training as required by each group. The Development Officer is a key link between the resources of the Joint Venture and the small-scale growers. In some areas the development officer is very effective in promoting development of small-scale growers and sugarcane production, but there are also some Development Officers who are manipulative and self-serving. In these cases, the Mill Cane Committees are not very enthusiastic about the activities of the Joint Venture.

## Conclusions and Recommendations

The Joint Venture partnership agreement has helped small-scale growers increase their sugarcane yields from 28 tons/ha to 39 tons/ha. There has also been an increase in area under sugarcane, as many more hectares are being developed in the tribal trust land areas. More farmers have gone into sugarcane production since the inception of the Joint Venture, partly because of the guaranteed market and improved technical services.

Black farmers, who were previously denied opportunities to own land, can now receive land through redistribution of state-owned land by the national government. Also, a land sale market has been created in the traditional white commercial areas, where any farmer can now purchase land. Black farmers who purchase these larger farms are now welcomed as commercial sugarcane farmers and receive extension services from the South African Sugar Association, as do other commercial growers.

The Joint Venture has made inroads into improving sugar production among the small-scale growers, and improving capacity of technicians, members of the Mill Cane Committee, and mill extension staff. It has also changed attitudes of these stakeholders to government (public) extension services. Government is now seen as a partner and not a single service provider, and this is a positive change. As stated by one government official, "The Joint Venture is not pushing sugar, it is pushing development". This may be one of the most convincing and pervasive strengths of the Joint Venture partnership when looking to the future.

## Extension Methods

Extension messages developed by the Sugar Association and delivered by the Joint Venture are technically sound and widely appreciated. Technicians greatly appreciate the new posters, but sometimes feel constrained by them and the accompanying scripts. The Agricultural Technicians would like other means of communicating messages to their growers groups, as long as the methods maintain a consistency in the message delivered. One extension material that is clearly appreciated by the farmers and technicians alike is the *Ingede* newsletter produced four times a year in local languages. Although useful and highly popular, it is relatively costly. An alternative would be the creation of a one-page newsletter or bulletin that would cost less than the *Ingede* and allow all small-scale growers something tangible to take home and read. Mill extension staff recommend continuation of observation plots that allow small-scale growers to critically select sugarcane varieties best adapted to their growing conditions and that encourage farmer-to-farmer interactions.

For the Joint Venture to be successful, it is critical to have the support of the heads of districts and an operating Research, Development, and Extension Committee with active involvement of the Mill Cane Committee (either the development officer or key contact growers). In areas where the Joint Venture is

not yet fully operational, it might be useful to use "study tours" for key people such as heads of districts or tribal leaders to visit areas where the Joint Venture is operating successfully. Tours of the Sugar Association's research station by small-scale farmers help to build ownership by key decision makers in the communities.

## Stakeholder Needs

What is becoming apparent is that the small-scale growers need to work more in groups in order to take advantage of limited resources. Skills such as group formation, numeracy, bookkeeping, and marketing are being requested more and more by the small-scale growers and the local producer organizations. The Joint Venture will have to become more involved in the development of rural development extension messages; and growers will need more control over the development of extension messages.

Technicians receive greater recognition and status in the Department of Agriculture and Environment Affairs and communities by way of their distinctive Sugar Association work shirts, their refresher courses, and their priority in travel arrangements. The technicians need to be better briefed on reporting responsibilities, and made aware of the opportunities for professional development that may arise as a consequence of completing their reports. There should be a forum or structure to allow technicians to interact with each other outside of the supervision of the Department of Agriculture or the Sugar Association, as this would allow them to freely share problems and ideas from their work programs.

Both small-scale growers and mill staff members have suggested that, although technicians are becoming more knowledgeable and credible, it might be better if they were actually growers themselves. Other staff strongly opposed this idea, saying that the technicians would then be spending too much time on their own fields and not doing their jobs as extension technicians. One advantage of the observation fields is that they are done by farmers and therefore should be feasible for other farmers. Another option worth trying might be to use model farmers or farmer promoters.

In some places, the role of the development officer is being abused to the detriment of the Joint Venture. It has been suggested that financial management for the Mill Cane Committee be made the responsibility of the committee as a whole (a group) rather than of the Development Officer alone (an individual). This would give farmers more input into how funds are spent. Small-scale growers would likely request more training opportunities from the sugar extension specialists and technicians if they were given more control over their funds.

Other informal partners in improvement of sugarcane production are the farm laborers and contractors or haulers. Some mill extension staff are of the view that it is ineffectual to train small-scale growers, as it is not the small-scale growers themselves, but rather hired farm laborers, who do the farm work. These mill extension staff may not want to cooperate with the Joint Venture because they believe the Joint Venture is focusing on the wrong target group, the small-scale growers. Whatever the answer to this debate, the laborers are part of the equation and the Joint Venture has not yet dealt with the training of farm laborers and contractors or haulers.

Future Directions and Priorities

Five different options are suggested for consideration in this, or any similar partnership between public and private extension. Selection of a particular strategy will depend on the objectives and context of the particular situation. Some options are as follows:

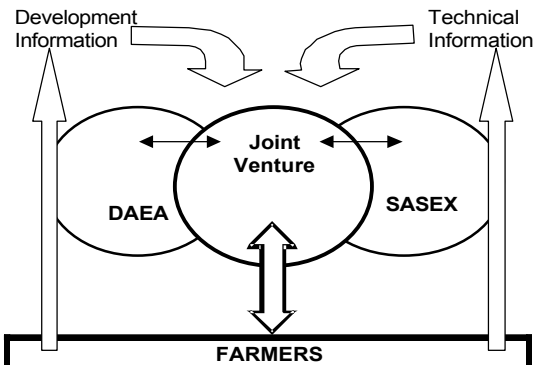
**Maintain the status quo.** In this situation, the decision made would be to continue with the existing structure of extension delivery and transfer of technical information. The expectation in this scenario would be to improve production through increased crop yields.

**Broaden developmental messages.** Small-scale growers require developmental messages and skills in addition to technical information. This is evidenced by the requests from the small-scale growers for training in numeracy, bookkeeping and marketing. The Joint Venture has established a system of information dissemination through technicians, field demonstrations, observation plots, research development and extension meetings. Newsletters and posters could be used to disseminate information on additional topics as requested by growers.

**Broaden stakeholder inclusion.** Many stakeholders are involved and interested in the success of this Joint Venture partnership. These include, but are not limited to, mill staff, commercial growers, medium-scale Indian growers, the Mill Cane Committee, farmers' organizations, input suppliers, contractors, tribal authorities, and municipalities. Although these stakeholders are interested in the Joint Venture, they do not have any responsibility to the partnership. Separate agreements might be used to include these stakeholders and increase their support and responsibility for the development of small-scale growers in their provinces.

**Introduce structural changes.** It may be in their own best interests for small-scale growers themselves to have more control over the Joint Venture. Small-scale growers might be allowed more room for input into the development of meeting agendas, topics for technical research developments, methods of extension delivery, support for field trials, and control over the delivery of information. Model growers might be identified to support farmer-directed extension efforts. This would necessitate a change in the structure of the Joint Venture. A possible schematic diagram of this change in extension structure is illustrated in Figure 2.3. Here, the farmers are viewed as the base of the communication structure and are supported to develop their own technical and developmental extension messages. The farmers would also be more responsible for such things as planning of field days, establishment of meeting agendas and development of technical curricula. However, the growers would require support from both South African Sugar Association Experiment Station and the Department of Agriculture and Environment Affairs as indicated by the arrows flowing through their structures.

**Figure 2.3. Farmer-led Information Flow**




Source: Authors

**Social message.** It is well-recognized that although most private extension systems are focused only on economic benefits, public extension systems have a broader mandate to include other developmental skills and messages. In addition to improving client skills, public extension must address social issues that can impact upon national agriculture production. These include such topics as: impact of HIV/AIDS on agriculture, migration of rural youth, and gender inclusion. Because the Joint Venture partnership has created an improved system of information delivery, Joint Venture technicians could also address these social issues. The Agricultural Technician is often times the only source of information that rural growers have to improve their livelihoods.

### Future Prospects for this Partnership

This public/private partnership has a bright future as it is a way of expediting service delivery to farmers, who need a service for which they are unable to pay. There is often talk of "privatizing extension", but this is not a very viable option in a situation, such as the case of small-scale farmers in the sugar industry in South Africa. However, partnerships, as in the case of the Joint Venture between South African Sugar Association and the Department of Agriculture and Environment Affairs, are a viable model for service delivery that can include much more than agronomic and production advice.

Other sectors have expressed interest in developing a similar model for service delivery to meet their individual needs. As the Provincial Department of Agriculture and Environment Affairs in Kwa-Zulu-Natal Province begins the process of designing an operational strategy for rural extension services, the Joint Venture should be taken as a prime example of a successful strategy that can be incorporated the overall design of a provincial model for extension.

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# Uganda: Evolution of the Extension: Farmer Relationship

E. Friis-Hansen and D. Kisauzi

This study analysis changes in extension interaction with farmers in Uganda. The study focuses on the approaches and methodologies used by extension staff to: (a) understand farmers' needs, and (b) provide advisory services that satisfy these needs. Fieldwork was carried out in 2001 using a combination of methodologies including key informant interviews and a formal survey of farmers and extension workers. Random sampling techniques were used to select the study parishes, villages and respondents in Kabale, Soroti, and Hoima districts. A total sample of 106 farmers was randomly selected from the selected villages. Selection of extension personnel using similar criteria resulted in a total of 43 extension staff to be interviewed.

### Evolution of Extension Programs in Uganda

In the period between 1964 and 1971, attempts were made to explore more effective methods appropriate to extension service delivery in Uganda. Programs, such as the Young Farmers of Uganda, Home Economics, and the Extension Saturation Approach were initiated during this period. From 1971 to 1979, funding and logistic support to extension declined, leading to stagnation not only in the service to farmers but also in the evolution of the extension approaches.

The 1980s were a period of restoration of agricultural productivity. Farmers were encouraged to expand acreage and use improved technologies passed on to them by extension workers from different ministries.

Four ministries were principally involved in agriculture namely, the Ministry of Agriculture, Ministry of Animal Industry and Fisheries, Ministry of Environment Protection, and Ministry of Commerce, Cooperatives and Marketing. Each ministry had extension workers distributed at the various administrative levels (district, county, and sub-county), responsible for advising farmers in their specialization.

In 1991, an attempt to improve the coordination of extension activities brought agricultural extension under one Directorate in the Ministry of Agriculture, Animal Industries, and Fisheries (MAAIF). The MAAIF itself was formed from the merger of the Ministry of Agriculture with that of Animal Industry and Fisheries. A loan from the World Bank financed an Agricultural Extension Project (AEP) to introduce a modified training and visit (T&V) methodology. Under this approach, an extension worker was responsible for the delivery of extension messages in crops, livestock, fisheries, and natural resource management, to about 1,000 farm families in a defined geographical area. Farmers were expected to obtain all their information and advice from this one extension worker. By 1995, a total of 29 districts were using this approach.

Parallel to the changes in public extension in the 1980s and 1990s, a proliferation of Non Government Organizations (NGOs) began operating at the grassroots level, providing channels for agricultural technology and information service delivery to the farmers. Many NGOs used government extension workers to provide services through participatory extension approaches. Introduction of participatory extension approaches was catalyzed by NGOs, similarly to the way donors influenced research in the same direction.

The end of the World Bank-funded AEP coincided with a period of structural adjustment and government reform. Key among those reforms, and pertinent to extension, was a decentralization policy, under which many governmental functions and powers were devolved to the districts. The districts are now required to plan and implement their own programs. MAAIF (initially through the Directorate of Agricultural Extension) was left with the function of formulating policies, setting standards, training extension staff, and enforcing regulations crucial to sustainable exploitation of natural resources. Extension workers at district level were put under the direction of the local District Governments.

In mid 2001, the government launched the National Agricultural Advisory Services (NAADS) Program, premised on the strategic objectives of empowering farmers to demand agricultural advisory services (the preferred term for "extension"). The new approach will operate under a new statutory semi-autonomous body - the National Agricultural Advisory Services (NAADS) – under the MAAIF. Resources will be allocated and advisory services managed at the sub-county level. Utilization of resources will be triggered by Farmers Fora constituted of representatives of farmer groups in the sub-county. The provision of the services will be predominantly through contracts issued to private providers and not government extension workers.

## Evolution of Approaches and Methods for Farmers' Needs Assessment

Survey results relating to farmers' interactions with fellow farmers and extension workers are presented in Tables 2.6 and 2.7. Discussions with farmers indicate that prior to the 1990s, extension workers involved them in needs assessment processes simply as sources of information. This seems to have changed over the years, with farmers in the 1990s more involved in a participatory manner as partners, articulating their needs and spelling out what innovations they would like to see research delivering. In this regard, 88 percent of farmers presently acknowledge having expressed their technology needs to someone. Only 12 percent of the respondents indicated that they had done so prior to the 1990s, but an additional 33 percent indicated they had shared their needs over the period 1991 to 1994 and a further 47 percent had done so from 1995 to 2000.

**Table 2.6. Farmers' Sharing of Needs with Other Farmers and Extension Workers**

| *Variable* | | *No. of farmers* | *% of all farmers* |
|---|---|---|---|
| *Ever shared farming needs?* | *Yes* | 93 | 87.7 |
| | *No* | 13 | 12.3 |
| *Need shared with:* | | | |
| Fellow farmers | | 85 | 89.5 |
| Extension workers | | 66 | 69.5 |
| Visiting researchers | | 38 | 40.0 |
| NGOs | | 33 | 34.7 |
| Local leaders | | 26 | 27.4 |
| Period started sharing needs | 1995-2000 | 50 | 47.2 |
| | 1991-1994 | 35 | 33.0 |
| | Pre-1991 | 8 | 7.5 |

Source: Authors

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**Table 2.7. Method of Consultation on Farming Needs**

| | *Number of farmers acknowledging method was used* | | | | |
|---|---|---|---|---|---|
| *Method* | *1970-80* | *1981-85* | *1986-90* | *1991-95* | *1996-2000* |
| Participatory meetings N=35 | - | 1 | 4 | 13 | 29 |
| Informal discussion | | | | | |
| Group discussion N=63 | 6 | 7 | 11 | 34 | 60 |
| Demonstrations N=55 | 2 | 5 | 9 | 25 | 50 |
| During seminars N=54 | 1 | 3 | 9 | 25 | 48 |
| Visits to other farmers N=54 | 2 | 5 | 12 | 26 | 41 |
| Formal survey questionnaire N=23 | 1 | 2 | 4 | 7 | 21 |
| Visits to DFIs N=41 | 8 | 6 | 9 | 17 | 28 |
| Visits to offices N=24 | 2 | 1 | 4 | 10 | 18 |

Source: Authors

Over a third of the farmers who acknowledged sharing needs indicated that they have done this through participatory meetings, a mechanism that seems to have been used more frequently over the last five years. Farmers have shared their needs with others mainly during group discussions, demonstrations, seminars, visits to other farmers, visits to District Farm Institutes and visits to agricultural department offices. In all cases the number of farmers using these methods intensified between 1991-95 and almost doubled in the last five years.

It appears that in the 1990s there was an increase in farmer-to-farmer interactions or farmer involvement in needs assessment by extension advisors. This was the period of government policy reforms aimed at

increasing participation of rural people in the development process - manifested in extension through government projects and institutional reforms. Since this reform environment still prevails, there is an opportunity to institutionalize farmer participatory approaches to needs assessment in the coming years. Farmers are key players and at the same time are the targets for agricultural technological change. Knowing farmers' needs is central to designing effective innovation programs and this gives rise to the current trend in agricultural advisory services facilitating farmers' identification of their needs

**Table 2.8. Methods Used by Researchers and Extension Workers Assessing Farmers' Needs**

| | *No. of extensionists using method by period* | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Method*** | ***Pre-1970*** | ***1970-1980*** | ***1981-1985*** | ***1986-1990*** | ***1991-1995*** | ***1996-2000*** | ***Extensionists using method (percent)*** |
| Literature search | 64.1 | 6 | 6 | 11 | 10 | 18 | 19 |
| Donor agenda | 43.5 | 1 | 2 | 3 | 6 | 12 | 17 |
| Interaction with peers | 84.6 | 4 | 7 | 13 | 15 | 30 | 32 |
| Pre-season planning workshops | 89.7 | 1 | 2 | 7 | 11 | 26 | 35 |
| Bimonthly technical workshops | 61.5 | 1 | 1 | 4 | 8 | 17 | 21 |
| Visits to extension offices | 58.9 | 3 | 3 | 6 | 11 | 17 | 20 |
| Informal discussion with politicians | 84.6 | 3 | 6 | 12 | 16 | 27 | 29 |
| Written memo from politicians/local leaders | 48.7 | - | 1 | 3 | 9 | 15 | 18 |
| Key informant discussions | 74.4 | 8 | 11 | 15 | 14 | 24 | 28 |
| Informal discussion with farmer groups | 84.6 | 8 | 10 | 14 | 20 | 29 | 31 |
| Focus group discussion with farmers | 69.2 | 4 | 5 | 8 | 8 | 22 | 27 |
| Gender disaggregated groups | 35.9 | 2 | 2 | 3 | 3 | 7 | 13 |
| Wealth disaggregated groups | 28.2 | 1 | 1 | 2 | 2 | 4 | 10 |
| Age disaggregated groups | 20.5 | 1 | 1 | 1 | 2 | 4 | 6 |
| PRA | 71.7 | - | 2 | 3 | 7 | 15 | 27 |
| Stakeholders workshops | 64.1 | - | - | 1 | 1 | 10 | 25 |
| Program planning and review work shops | - | - | - | - | - | - | - |
| Formal surveys using questionnaires | 74.4 | 2 | 1 | 3 | 6 | 22 | 26 |

Source: Authors

Extension workers have used various methods over the years to identify farmer's needs. From the 1970s to the mid-1980s, there was heavy reliance on literature searches and interaction with peers/colleagues in technical conferences, seminars, and workshops. Reliance on these methods declined from the second half of the 1980s and has remained low to the present (see table 2.8).

The mid 80s saw the start of attempts to diversify methods used to identify farmer needs. Initially most researchers used pre-season planning workshops organized by extension and program planning and review workshops organized by research. An approach using informal discussions with farmers also began to emerge. Extension workers surveyed indicated that pre-season and program planning workshops were not effective, even when farmers were involved, mainly because they are researcher/extension worker-driven, and emphasis is put on technical discussions of work-plans and budgets. However, since these methods continue to be used, there is a need to improve farmer participation, and find ways of increasing farmers' influence over outputs and outcomes.

The use of participatory methods in needs assessment has grown over the years with 71 percent of the sampled extension workers having used these methods. The proportion of extension workers that used PRA methods has gradually increased. Similar trends are seen in use of informal discussions with farmers, focus group discussions, and stakeholder workshops. However extension worker use of farmer

participatory approaches that disaggregate farmers by categories still remains low – not more than 35 percent disaggregate farmer needs by gender; 28 percent disaggregate by wealth category; and 20 percent disaggregate by age.

Agricultural advisors need an in-depth conceptual understanding of participatory processes to enable them to adapt participatory methodologies to local situations. Communication and facilitation skills and skills in facilitating multi-stakeholder workshops are a pre-requisite for effective identification of farmers' needs.

## Evolution of Approaches and Methods for Satisfying Farmers' Technical Needs

Extension workers reported using various methods to make research results available to farmers, and there has been an increasing trend in use of each of the methods presented in Table 2.9. The most common methods used to disseminate researcher results have been agricultural shows, leaflets and brochures in English, seminars, demonstrations and talks to visiting farmers/school children. In addition, extension workers have relied heavily on field visits. However most of these methods were reported to have limitations. Agricultural shows are not accessible to most farmers, especially those in remote areas who lack transportation. Leaflets/brochures in English benefit only educated farmers, and these are still a minority. Use of village meetings and farmer field schools to promote research results has been introduced over the last 15 years and about a half of the sampled extension workers now use these methods.

**Table 2.9. Methods Used in Dissemination of Research Results Over the Years**

| *Method* | *Extensionists using method (percent)* | *No. of extensionists using method by period* | | | | |
|---|---|---|---|---|---|---|
| | | *1970-80* | *1981-85* | *1986-90* | *1991-95* | *1996-00* |
| Seminars N=20 | 69.2 | 7 | 8 | 10 | 21 | 25 |
| Village meetings N=11 | 51.2 | 6 | 7 | 6 | 11 | 18 |
| Demonstrations N=20 | 89.7 | 10 | 10 | 18 | 29 | 29 |
| Farmer field schools N=9 | 51.2 | 1 | 1 | 2 | 1 | 17 |
| Leaflets in local language N=15 | 66.5 | 8 | 9 | 10 | 20 | 23 |
| Leaflets/brochures in English N=21 | 71.8 | 9 | 11 | 15 | 22 | 26 |
| Seed multiplication and sale N=16 | 79.5 | 3 | 3 | 7 | 24 | 27 |
| Radio N=13 | 64.1 | 10 | 10 | 12 | 21 | 24 |
| Documentary films N=12 | 51.3 | 9 | 7 | 5 | 11 | 14 |
| Drama N=4 | 28.2 | 1 | 1 | 3 | 6 | 10 |
| Stakeholder conferences N=16 | 64.1 | 2 | 2 | 5 | 18 | 24 |
| Field visits N=18 | 84.6 | 6 | 7 | 13 | 25 | 28 |
| Talks to visiting farmers, schools | 61.5 | 6 | 9 | 10 | 18 | 21 |
| Agricultural shows N=20 | 79.5 | 10 | 10 | 13 | 24 | 28 |

Source: Authors

A majority of the sampled farmers (73 percent) cited radio as their main source of information on farming activities (see table 2.10). Closely following radio as a source of information were "extension workers" and "other farmers" cited by 70 percent and 66 percent of the respondents respectively. Given the fact that many farmers obtain information from the radio, it is important to improve use of this dissemination mechanism and ensure that complete messages on technologies are passed on by radio. For example,

when promoting a new variety, it would be important also to specify the agronomic practices required for optimal yields from the variety.

Other farmers (including, relatives, neighbors, and friends) are an important source of information for 60 percent of surveyed farmers. The fact that farmers learn extensively from each other provides an argument against conventional technology dissemination strategies that view farmers as passive recipients of knowledge and skills.

**Table 2.10. Farmers' Sources of Information on Farming Activities**

| | *No. of farmers Using (N=104)* | *percent of farmers* |
|---|---|---|
| ***Source of information*:** | | |
| Radio | 76 | 73.1 |
| Extension staff | 73 | 70.2 |
| Other farmers | 69 | 66.3 |
| Farmer group/association | 56 | 53.8 |
| Visiting researchers | 40 | 38.5 |
| Pamphlet/leaflets | 40 | 38.5 |
| NGOs | 39 | 37.5 |
| Stockist | 19 | 18.3 |
| ***Institution or agency farmer turns to for advice:*** | | |
| Extension workers | 65 | 67.0 |
| Other farmers | 60 | 61.9 |
| NGOs | 24 | 24.7 |
| NARO | 19 | 19.6 |
| Farmer group | 4 | 4.1 |

Source: Authors

Over the years extension workers have used various institutions to reach farmers. Extension workers have usually worked through church based groups, chiefs, youth groups, traditional leaders and women's groups in interacting with farmers (Table 6). Use of these groups has increased moderately. Since Local Councils (LCs) came onto the scene between 1986-90, extension workers have worked with them extensively. Both Chiefs and LCs help in mobilizing farmers, while women's groups and mixed farmer groups have been effective in information/technology dissemination and trials. Women's groups have also been used for demonstration purposes and seed multiplication.

**Table 2.11. Institutions Used by Extension Workers to Interact with Farmers**

| | *No of extensionists using institution* | | | |
|---|---|---|---|---|
| ***Institution*** | ***1981-85*** | ***1986-90*** | ***1991-95*** | ***1996- 00*** |
| Clan/traditional leaders | 14 | 16 | 17 | 19 |
| Chiefs | 24 | - | - | - |
| Local council | - | 26 | 32 | 33 |
| Women groups | 13 | | 30 | 34 |
| Youth groups | 16 | 13 | 22 | 22 |
| General farmer groups | 14 | 17 | 31 | 29 |
| Church based groups | 12 | 13 | 18 | 20 |

Source: Authors

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# United Kingdom: ADAS and the Privatization of Advisory Services in England and Wales

Chris Garforth

The Agricultural Development and Advisory Service (ADAS) is a private company that emerged from the successful 1997 privatization of the U.K. government's agricultural advisory service for England and Wales[9]. This was the final stage in a process of progressive commercialization that began in 1986 after 40 years of a free, national advisory service for farmers (Needham 1998) (see Box 2.1). ADAS now describes itself as "the leading consultancy and research organization to the land-based industries, working throughout the U.K. and overseas."[10] ADAS is one of over 60 firms that describe themselves as Agricultural Consultants.[11] A wide range of public and private organizations now offer advice and information to farmers. These commercial services are demand-driven, whereas government funded bodies and schemes have a supply-driven agenda linked to current policy for farming and rural areas. Government is now looking for ways of improving knowledge transfer within the industry, and integrating business and environmental advice at the point of delivery to farmers.

**Box 2.1. History of Advisory Services in England and Wales, Post-Second World War**

| | |
|---|---|
| Pre-1946 | Agricultural advisers employed by county councils, with technical back up from agricultural colleges and university departments. |
| 1946 | Under Agriculture Act 1944, government sets up the National Agricultural Advisory Service |

[9]Extension arrangements are different in Scotland and in Northern Ireland.

[10]ADAS website: http://www.adas.co.uk/NewIndex/INDEX.HTM. Accessed 26 September 2002.

[11]Search: www.yell.co.uk on 27 September 2002.

| | |
|---|---|
| | (NAAS) to provide free services to farmers to boost agricultural production through adoption of new technology. |
| 1971 | NAAS combines with other technical services of the Ministry of Agriculture, Fisheries, and Food (MAFF) to form the Agricultural Development and Advisory Service (ADAS). |
| 1986 | Agriculture Act 1986 allows fees to be charged for services; ADAS given target of 50 percent cost recovery from user fees within five years. |
| 1992 | ADAS becomes an Executive Agency under the government's "Next Steps" initiative, as a step toward eventual privatization; new targets for cost recovery are set. |
| 1997 | Government offers ADAS for sale through a tendering process, and sells it to a management team buy-out with venture capital backing. |

Source: Authors

## How and Why Did It Happen?

Two main factors prompted the developments, which began in 1986. First was the impressive success of post-war U.K. agriculture in terms of increased production. The concern in 1946 had been that the U.K. was not producing enough of the food it needed. For strategic reasons, and with the experience of the Second World War still fresh in mind, it was deemed reasonable for the taxpayer to bear the cost of an advisory service that would boost production. Forty years later, U.K. farms were producing far too much. The escalating cost of price support led government to question whether taxpayers should continue to foot the bill for technical and business advice to farmers. The strategic imperative had receded--farmers rather than the nation at large were the beneficiaries of the service, therefore, farmers should pay.

The second reason for the reform was more political or ideological. The government of the day was committed to reducing the scale of government activity. It took the view that government should only be involved in providing those goods and services which the private sector is not willing to provide; and services for which government remains responsible should, where possible, be contracted out to the private sector. This was the era of privatization of utilities (telecommunications, water, gas and electricity supply) and contracting out of a whole range of local and central government services, from school meals provision to cleaning of hospitals. In the case of agriculture, government remained committed to funding the provision of advice on matters relating to the public interest, including animal welfare, environmental protection and conservation, and, at the time of privatization in 1997, the part of ADAS which delivered this kind of advice was retained within the public sector as the Farming and Rural Conservation Agency (FRCA)--an Executive Agency of the Ministry of Agriculture, Fisheries, and Food.[12]

As Box 2.1 shows, privatization did not happen overnight. Before the final sell-off, ADAS moved first from providing a free service to recovering an increasing proportion of its costs from clients, then to an Agency outside of, but still answerable to, the Ministry. During the Agency phase, ADAS had to meet performance targets that were agreed to each year with the Minister. These included increased rates of cost recovery; reduction in total cost per hour of service provided; milestones for research and development projects; and customer satisfaction as assessed through surveys.

[12]In 2001 FRCA was merged with the new Rural Development Service.

## Services and Clients

As a private company, ADAS relies for its income entirely on fees from clients. Its declared mission is ”to be the leading U.K. provider of research and consultancy to land-based industries, working with our customers through the provision of quality services for the benefit of their businesses".[13] The range of services it provides and its client base are different from those of the pre-1997 public sector ADAS. The Agriculture Act of 1986 allowed ADAS to expand its client base beyond primary producers into other land-based businesses within England and Wales. Clients now include businesses at all stages of the food supply chain from farmers to caterers and retailers, including major supermarket chains. The privatized ADAS can base its services on what potential clients want and are prepared to pay for rather than what government wants to tell farmers, and it is free to seek business throughout the UK and beyond. It is now completely demand-driven Part of that demand still comes from government, which contracts ADAS and other consultancy companies to deliver services on its behalf. Within England and Wales, ADAS is far from being in a monopoly situation: it is one of scores of consultancy companies offering advisory and other technical services to farmers and must compete with them on price and quality and range of services. To do this, it has had to reduce its overhead costs dramatically since 1986, by removing layers of management and administration, closing offices and helping consultants to work from home, and investing heavily in IT systems to improve the efficiency of its operations.

Services are provided by around 1,300 professional and support staff, covering a wide range of scientific and management disciplines. Services include research and development; business and technical advice in agriculture, horticulture, and food processing; laboratory services; environmental impact assessment; marketing and market research; rural planning; and risk assessment throughout the food supply chain. The precise nature of the service, and of the information or advice provided, is tailored to the needs of the individual client.

The main methods of service delivery are through personal contact with clients, both face-to-face and through telephone, print material, open days that can be attended by anyone interested, and the Internet. The Internet is used in two main ways: (a) presenting technical information and general advice in an accessible form; and (b) providing interactive services such as decision support tools.[14] Some interactive services are available free of charge; other services require a subscription.

## Socioeconomic Impact

Privatization brought many new clients to ADAS, including corporate clients who felt they could deal with a commercial, competitive company with an established reputation but no longer encumbered by being an arm of government. But ADAS also lost many individual clients, particularly smaller scale farmers who were neither used to, nor prepared to, pay for advisory services. The overall socioeconomic impact of this loss was probably quite small, as there have been many other factors since the mid 1980s that have been driving small-scale farmers out of business. Very little, if any, of the current downward trend in farm incomes can be attributed to the increased cost of technical and business advice.

An issue that faces advisory services generally is the potential for using ICTs as a means of communication with and service delivery to farmers. A recent report on e-business potential in UK

[13]ADAS website: http://www.adas.co.uk/NewIndex/INDEX.HTM. Accessed 26 September 2002.

[14]http://www.agronomy-interactive.co.uk/

agriculture identified several promising ways in which ICTs could be used to inform and support those farmers that have Internet access (53 percent in a survey of 2,000 farms). However, many of the remaining 47 percent, are thought unlikely to acquire a computer in the near future (ICL/ADAS 2000). The Department for Environment, Food and Rural Affairs (DEFRA) found in their Livestock Knowledge Transfer Initiative that farmers did not rank the Internet highly as a preferred source of information (Drew 2001). A recent report by IBM's Local Futures Group warns of a "new underclass of people in rural and remote areas who are being excluded from online public services by lack of access to technology." ICT infrastructure will continue to evolve, and interactive television may be a more accessible and user-friendly reality in the future than the conventional PC connected to the Internet (Local Futures Group 2002).

## Stakeholders' Views

The main stakeholders in the privatization of ADAS are the staff and management of the organization, its clients (or customers), its competitors, the general public (who consume the food and other products of the rural environment and agriculture), and government.

*Staff.* In the years leading up to privatization, many staff were not happy with the idea of a free public service becoming commercialized. Support staff numbers had to be reduced substantially in order to bring down overheads and the overall hourly cost of providing services. Many of those who felt uncomfortable with the transition from a public service to a business ethic left ADAS or transferred to the part of the organization that became FRCA and remained within the public sector. Others have found the change stimulating and liberating, gaining increased job satisfaction from winning business and satisfying clients and no longer having to balance the expectations of government with the needs of clients (Bell 1998). Since cost-recovery began, management made a conscious effort to facilitate the transition by providing a lot of training in new skills, particularly in sales and marketing.

*Clients.* Surveys of ADAS's customers show a high level of satisfaction with the services provided by the company. More generally, many farmers are unhappy with the overall provision of agricultural advice and information, a point that is taken up later.

*Consumers.* It is fair to say that consumers knew little about the privatization and would probably not have cared much if they had.

*Government.* The government view on the privatization (i.e., the view of ministers and civil servants in the Department for Environment, Food, and Rural Affairs, DEFRA), is that it was a successful process which preserved within a single organization the technical and advisory expertise built up over fifty years by NAAS and ADAS and helped it respond more directly to the advisory needs expressed by farmers.[15] However, more relevant at the present time are government's broader concerns about the whole spectrum of advice available to farmers, particularly in respect of the promotion and fulfillment of its policy objectives.

An important factor is that policy toward agriculture is now subsumed within a broader set of policies towards rural areas, which cover social, environmental, and economic issues. The overall aim is sustainable development in rural areas. This is to be addressed through diversification of the rural

[15]DEFRA was formed in 2001, to take over the functions and responsibilities of the former Ministry of Agriculture, Fisheries and Food and many of those of the former Department for Environment, Transport and the Regions.

economy, both by on-farm diversification and through the development of non-farm-based industries in rural areas. The government vision is one of vibrant, sustainable rural communities in which farming is both an economic activity and the means by which much of the physical environment in rural areas is managed. One of the key policy instruments is the English Rural Development Program (ERDP), within which several schemes are available to help farmers and others diversify (MAFF 2000a). DEFRA has established (April 2001) a new service within its own structures – the Rural Development Service. This service would be responsible for the management and promotion of ERDP schemes.

## Current Debates and Concerns

The government created a demand-driven service for technical and business advice through privatization. In response to client demand, this extends to advice on environmental and conservation issues for those who are prepared to pay for it. Having divested itself of ADAS, government is once again talking a supply-driven language of "knowledge transfer" and "promoting the uptake of new technology."[16] Their interest in promoting new technology and land management practices is not, as in the period of the 1940s to 1980s, to see an increase in production, but rather to help the agricultural industry (a) improve its efficiency and competitiveness within the European and global contexts of CAP reform and WTO, and (b) deliver more sustainable land use.

Privatization occurred at a time when the need for government to communicate with farmers and other land-based businesses was intensifying. This arose from at least three factors: first, the food safety and animal health crises of BSE (bovine spongiform encephalopathy) and more recently Foot and Mouth Disease in 2001; second, the growing number and complexity of schemes for regulation (e.g., Nitrate Vulnerable Zones) and support which farmers need to comply with these regulations; and third, major policy initiatives, as embodied in the English Rural Development Program and the Action Plan for Farming (MAFF 2000b). Within this context, government concerns about advisory services include:

- A perception that business and environmental advisory services are not integrated at the point at which farmers access it. Government is committed to trying to "improve the accessibility, quality and relevance" of advice, and to achieve a better "integration of economic and environmental messages" (Garforth et al. 2002).
- The sheer volume of information and advice that needs to be made available to farmers so that they can make informed decisions in the best interests of both their business and the public at large, and to make sure they act within the regulations on, for example, pollution, food safety, and animal welfare
- Recent reports suggesting that the current arrangements for advisory services are inadequate. For example, the government-appointed Commission on the Future of Farming and Food reported in 2002 that they "do not think that the current approach to farm advisory services meets the needs of farmers now, or will adequately prepare the industry for the challenges and opportunities of a reformed CAP" (Cabinet Office 2002).
- A perception that new, efficient, and sustainable technologies emerging from government- and industry-funded research are not being taken up by farmers as quickly as expected.

The view that information and advisory services are fragmented is widely shared in the agricultural industry. To some extent, this is a positive feature: agriculture is a very diverse industry and has become

[16]Countryside Agency's Land Management Initiatives: http://www.countryside.gov.uk

more and more specialized over the past fifty years. Information and advisory needs vary widely. Specialist producers require and expect specialized services. Farmers' responses to the changes around them vary. Some look for niche markets by converting to organic production and others move into value added processing or into non-farming land uses (e.g., recreation, conservation, tourism). These diverse needs require diversity in service provision; and in the end it is the farmer who has to integrate the available advice and technical information in the decisions he or she makes in the particular circumstances of the farm. But when farmers have to search for information from many different sources, or find it difficult to assess which information is relevant, or are confused by the apparently overlapping responsibilities and expertise of different organizations, there is a clear indication that then the current arrangements are inefficient.

Some commentators argue that privatization contributed to fragmentation (Winter 1995), suggesting that it is a negative development. ADAS would argue that as one of the largest and most comprehensive land use consultancies in the country it is much better placed than a fragmented bureaucracy to offer customers a "one-stop shop" for advice and technical services. They have structured the business in such a way that wherever a customer makes an initial contact, they can quickly be referred to the appropriate sets of expertise. The advisory relationship is through a specific consultant who can assemble the required advisory and technical inputs from across the organization.

The situation in the public sector is somewhat less integrated. There is a plethora of ministry services, executive agencies, and "Executive Non-Departmental Public Bodies" (NDPBs) which communicate with farmers and other land managers on matters related to government policy or technology.[17] Some of the latter serve specific sectors of the industry and are funded through a levy on sales from all producers within the sector. An example is the Milk Development Council (MDC), which among other functions provides a market information service, funds research on behalf of dairy farmers, provides technical advice in the form of "Research into Practice" booklets, and arranges open days for farmers. Its work is funded from a statutory levy on every litre of milk sold.[18] Others have a wider remit to serve the public interest. The best known are perhaps the Countryside Agency, the Environment Agency, and English Nature. The remit of some bodies is for England only, others cover England and Wales, and others (including the MDC) have a remit for the whole of Great Britain (i.e., England, Wales and Scotland, but not Northern Ireland). The Environment Agency has important regulatory functions as well as an education and information remit. The Countryside Agency has set up Land Management Initiatives in the main regions of the country to test and demonstrate sustainable land management systems, which it then promotes to farmers and to government. All of these bodies have important and valid roles to play in the development of agriculture, the rural economy and the environment: this inevitably means they need to communicate with a wide range of stakeholders including farmers. The challenge is to ensure that, at the point at which the farmer needs or seeks advice and information, there is a clear, easily navigable route through the complexity of provision.

## Government Response

The government, through the DEFRA, has responded to its own concerns as well as the industry's concerns about advisory services in four main ways:

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[17]The DEFRA website lists 20 of these NDPBs: http://www.defra.gov.uk/corporate/agencies.asp

[18]http://www.mdc.org.uk

- Contracting private sector (commercial and not-for-profit) organizations to provide specific advisory services. For example, The Organic Conversion Information Service (OCIS) is run under contract by two not-for-profit organizations (Garforth et al. 2002). The Soil Association runs a telephone helpline that provides a basic level of information, whereas the Elm Farm Research Center provides visits by advisers under a separate contract.
- Funding short-term "knowledge transfer initiatives" in different agricultural sectors. These again were contracted (after competitive tendering) to different consortia that developed very different strategies for their respective sectors.[19] A separate contract to evaluate the impact of these initiatives is now under way.
- Initiating a wide-ranging consultation process on improving knowledge transfer, with a view to developing a coherent knowledge transfer strategy.
- Funding research on knowledge transfer issues.

## Five Years Later

Five years after the privatization of ADAS, government has recognized that its need to be involved in communication with farmers has increased rather than diminished. The modalities it has chosen for doing so include contracting out specific services to the private sector, establishing semi-autonomous bodies, and developing new in-house capacity (e.g., the Rural Development Service). Such a complex array of responses is probably inevitable given the diversity both of the agricultural sector and the demands and expectations placed upon it in government policy. At least there is now a much clearer distinction than pre-privatization between demand-driven advice that farmers can buy from the private sector, and supply-driven advisory initiatives through which government seeks to influence land management decisions in the direction of its own policies. But a greater government role in the provision of technical advice is now back on the agenda as one of the options being considered for tackling the perceived negative consequences of fragmentation of services and slow take-up of technologies.

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# Contracting for Delivery of Extension Services

# Honduras: Fondo para Productores de Ladera: Public Funding for a Private Extension System for the Hillside Farmers

Jim Hanson, Jorge Lainez, Jim Smyle, and Wilfredo Diaz

Fondo para Productores de Ladera (FPPL) is a publicly funded, private delivery extension system designed to work with small farmers in hillside agriculture in the Honduran states of Yoro, Olancho, and Francisco Morazán. FPPL, which is part of the Natural Resource Division of the Ministry of Agriculture and Livestock, became operational in June 1999. It is a pilot effort that will end in December 2003 and for which a second phase is expected to continue through 2008.

The objectives of FPPL are: (a) reduce the environmental degradation associated with deforestation and soil erosion on hillsides, (b) work with small farmers who live on these hillsides to increase their incomes and quality of life, and (c) develop a long-term financing mechanism that the Honduran government can use to continue this program. Historically, the Honduran government has not provided services to these upland farmers focusing instead on "farmers with potential" (those on the best lands). However, because there is a strong inter-relationship between poverty, food insecurity, and the accelerating rate of deforestation and soil erosion in upland communities, there is a new commitment to providing educational advice to these small farmers (World Bank 1997). Hurricane Mitch demonstrated the importance of this emphasis when the damage due to landslides and sediment deposition was greatly increased due to deforestation.

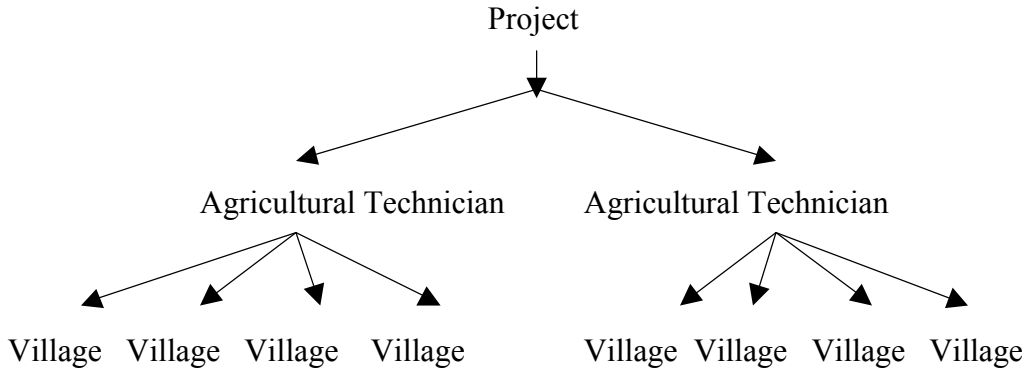
## Administration and Operation

The administration of the FPPL was contracted out through a competitive process that resulted in selection of CATIE, an agricultural research and education center located in Costa Rica with country offices located throughout Central America. CATIE manages the FPPL through eight technical specialists and a director. Two agronomists and a forester are posted in Yoro Province, one agronomist and one forester in Olancho, two agronomists in Francisco Morazán, and one information and technology expert and the program director in Tegucigalpa. These technical specialists promote the program, evaluate proposals developed jointly by private companies and community groups, monitor and evaluate the program's functioning at the field-level, supervise contracts, and certify results. The private companies hire their own agricultural technicians to work directly with farmers.

The four activities of FPPL are technology transfer, small watershed management, training, and applied research. To date, activities have focused on technology transfer. Through CATIE, the national government contracts with private companies to provide agriculture and natural resource educational advice (extension) to small farmers on the hillsides in these Departments (see figure 2.4). A private company may have more than one project, but each project is limited to eight villages of approximately 20 families each. There are two agricultural technicians for each project with each working with four villages or 80 families (visiting a village at least one day per week). Home economists and forestry technicians may also be employed.

The private companies providing services work in a participatory fashion with each village to develop a proposal identifying the goals they want to accomplish in the upcoming year. Villages can choose from several thematic areas (agricultural production, forestry production, livestock production, soil conservation, home improvements, and environmental education) and from some 64 specific activities or support services. For example, a given village may want to practice improved maize production on 25 manzanas (one manzana is equal to 0.7 hectares.) (Agricultural Production), plant 800 meters of live grass barriers on the hillsides (soil conservation), and plant 560 meters of trees (forest production). The village proposals are submitted to the government and, upon approval, a contract is awarded to the service provider for one year of implementation.

**Figure 2.4. Guidelines for a Private Company Provision of Services**




[Each village has, on average, 20 families or 160 families per project; each village must meet certain characteristics (geographical, income, and social) as specified in the contract]

Source: Authors

The private service provider is paid approximately US$27 per family to develop a proposal and, if the proposal is approved, receives an additional US$216 per family for one year's implementation. In subsequent years, the private company is not paid to write a new plan, but only for implementation. Villages do not receive direct subsidies, such as free seeds or health care for animals; their only subsidy is the educational advice and assistance provided by the private company.

The technical specialists from CATIE certify (evaluate) each FPPL project every three months. The certification is comprised of a quantitative assessment that accounts for 60 percent of the total score and a qualitative evaluation that accounts for 40 percent (24 percent from interviews with agricultural technicians and 16 percent from interviews with farmers). For certification, two villages are selected at random from the eight villages participating in a given project. The technical specialists make physical measurements of the indicators for individual activities for the quantitative analysis. For the qualitative portion of the assessment, the technical specialist interviews the agricultural technicians working with the villages and 15 percent of the participating families (typically three families per village). The certification typically takes the technical specialist one day per village. Because each technical specialist oversees eight projects, a total of 16 days are required per specialist per quarter to perform certifications of private companies. Assuming a successful certification, the private company is paid for that portion of work. At the beginning of the contract, the private company receives 50 percent of its project funds, followed by 20 percent, 20 percent, and 10 percent in subsequent quarters through to the end of the year. The private companies post a performance bond in order to receive the 50 percent advance.

## Results

It is expected that a private company will implement a project with the same villages over a number of years. During the first two years, 51 first-year projects had been planned of which thirty-eight projects were completed and continued into a second year of operation (see table 2.12). More second year projects will be initiated as other projects complete their first year of operation. Based on initial experience, the technology transfer component of FPPL appears to be a major success. Over 8,900 families were served by first year projects, far exceeding the original goal of 6,500 families for FPPL (World Bank 1997).

**Table 2.12. FPPL Implementation Status Over the First and Second Year of Operation 2000-2002**

| | *No. of private companies* | *No. of projects* | *No. of families* | *Plan costs/ family ($)* | *Project costs/ family ($)* | *Total costs/ family ($)* | *Total costs ($)* |
|---|---|---|---|---|---|---|---|
| ***First Year of Operation: 51 Planned Technology Transfer Projects*** | | | | | | | |
| Yoro | 12 | 25 | 4,402 | $27 | $216 | $243 | $1,067,573 |
| Olancho | 5 | 10 | 1,711 | $27 | $212 | $239 | $408,193 |
| Francisco Morazán | 8 | 16 | 2,840 | $26 | $218 | $244 | $693,698 |
| Total | 25 | 51 | 8,953 | $27 | $215 | $242 | $2,169,465 |
| **Second Year of Operation: 38 Planned Technology Transfer Projects** | | | | | | | |
| Yoro | 11 | 22 | 3,840 | 0 | $217 | 217 | $833,280 |
| Olancho | 4 | 9 | 1,617 | 0 | $213 | 213 | $344,130 |
| Francisco Morazán | 5 | 7 | 1,223 | 0 | $221 | 221 | $269,989 |
| Total | 20 | 38 | 6,680 | 0 | $217 | 217 | $1,447,399 |

Source: UAP-CATIE

The basic premise of technology transfer was that private companies would work together with poor villagers to set and achieve agricultural and natural resource goals. That premise appears to be valid. The technology transfer projects are based on the principles that technologies to be promoted would be low-cost; technologies would need to offer quick returns to farmers because there were no other financial incentives or subsidies to encourage adoption; farmers would validate technologies on their farms; and agricultural technicians would work with a selected number of families within each village expecting those selected to in turn teach other farmers.

Table 2.13 compares performance of private companies in meeting their goals for the agricultural production, soil conservation, and home improvement thematic areas the first and second years of operation. Specific activities are grouped together into a common subject matter (i.e., improved maize and soybean production, and crop diversification are grouped under Agricultural Production). In year one, private companies and villagers exceeded their planned goals for agricultural production, soil conservation and home improvement and met or exceeded all their specific goals except for contour retention ditches and animal housing. In year two, they met their goals for soil conservation and home improvement, but not for agricultural production. In general, they met their goals for specific activities except for agricultural diversification and contour retention ditches.

Goals are set collaboratively by the private companies and the villages. This participatory approach may have accounted for a large measure of the success of this project in years one and two. The goal program strategy recognizes that a goal of protecting resources (i.e., planting grass barriers) is more likely to be achieved if both income generating and resource protecting technologies are promoted than if protecting resources were the only focus (Bunch 1999).

**Table 2.13. Comparison Between First and Second Projects and Their Ability to Achieve Goals**

| | | *First Year: 41 Projects: 324 villages with 7,121 families* | | | | *Second Year: 7 Projects: 56 villages with 1,346 families* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ***A. Agricultural production*** | | ***Planned*** | ***Complete*** | ***% change*** | ***Avg/ Village*** | ***Planned*** | ***Complete*** | ***% change*** | ***Avg/ village*** | ***% change in avg. output*** |
| Maize | Mz. | 9,346 | 10,416 | 111 | 32 | 1,559 | 1,539 | 99 | 27 | 85 |
| Beans | Mz. | 6,485 | 6,909 | 107 | 21 | 1,376 | 1,355 | 99 | 24 | 114 |
| Diversification | Mz. | 1,317 | 1,469 | 112 | 5 | 211 | 79 | 38 | 1 | 31 |
| Average | | | | 110 | | | | 78 | | |
| B. Soil Conservation | | | | | | | | | | |
| Live grass barriers | Mts. | 225,450 | 231,937 | 103 | 716 | 43,535 | 44,466 | 102 | 794 | 111 |
| Contour retention ditches | Mts. | 24,208 | 15,033 | 62 | 46 | 2,518 | 2,218 | 88 | 40 | 85 |
| Managing stubble | Mz. | 3,592 | 4,831 | 135 | 15 | 745 | 799 | 107 | 14 | 96 |
| Cover crops | Mz. | 533 | 1,299 | 244 | 4 | 477 | 510 | 107 | 9 | 227 |
| Contour planting | Mz. | 1,171 | 1,353 | 116 | 4 | 356 | 341 | 96 | 6 | 146 |
| Narrower sowing distance | Mz. | 1,007 | 1,012 | 100 | 3 | 104 | 100 | 96 | 2 | |
| Average | | | | 127 | | | | 99 | | 57 |
| C. Home improvement | | | | | | | | | | |
| Home gardens | Mz. | 302 | 1,355 | 448 | 4 | 46 | 49 | 107 | 1 | 21 |
| Improved cook stoves | Not. | 1,572 | 1,592 | 101 | 5 | 256 | 233 | 91 | 4 | 85 |
| Animal housing | Unit | 1,737 | 1,504 | 87 | 5 | 331 | 330 | 100 | 6 | 127 |
| Animal health in chickens | No. | 14,558 | 17,584 | 121 | 54 | 1,149 | 1,155 | 101 | 21 | 38 |
| Average | | | | 189 | | | | 100 | | 68 |

Source: UAP-CATIE

The FPPL extension program links natural resource conservation with rural development in a positive fashion. Farmers are taught how to conserve their soils and protect hillsides through a combination of soil conservation and agricultural diversification efforts. Focusing on both creates a profitable agriculture and a clean environment. Farm communities have increased incomes and the negative effects of environmental degradation have been greatly mitigated. Also, since the majority of the private service providers are located in rural areas of Yoro, Olancho, and Francisco Morazán, the funds flowing into the states through contracts with these companies (over US$2 million), have had a significant economic multiplier effect and have stimulated small business growth.

## Lessons Learned

The privatized technology transfer system, in which private companies work with groups of villages to accomplish common goals, has worked well within FPPL. The participatory extension system, based on farmer input and cooperation and use of agricultural and natural resource technologies that are low-cost and offer quick results for farmers, is a good model.

In FPPL, while farmers participate in the design of the extension programs to be provided by private companies, it is important that they further increase their ownership in the projects by evaluating the private companies and helping with design of new outreach strategies to better serve their communities.

A publicly financed, private extension system requires significant administrative effort to protect the contractual integrity of the system. In FPPL, the time spent by the eight technical specialists to certify private companies is excessive, and takes them away from important agricultural and natural resource leadership roles within their state. The number of certifications could be reduced and contract payment schedules adjusted accordingly. Or, alternatively, younger and less experienced staff could carry out the more mechanical, less demanding activities (such as certifications), freeing up more experienced staff for quality control and technical support. In general, while there are efficiencies gained by privatizing the extension delivery system, the overhead costs associated with enforcing contracts and preventing abuses can be significant

Governments need to provide and supervise training for the agricultural technicians of the private companies. Although it might be assumed that private companies would provide their own training, that is unlikely because most of these companies are in their infancy. There has also been a high turnover among the agricultural technicians in the private companies. Of the 193 technicians that had been hired through 2001, 73 technicians, that is, 38 percent of them had changed their jobs before the end of that year (CATIE 2001). Some had shifted between companies because of salary and other considerations, but many were lost through attrition. Training programs and professional improvement could be important to increasing job retention.

Agricultural training and applied research projects have lagged behind technology transfer. Technical specialists from CATIE could increase emphasis in these areas, especially if their responsibilities for certification of private companies were reduced. These training and applied research efforts are necessary if extension programs are going to be sustainable.

The two FPPL goals are: (a) reduce the environmental degradation associated with deforestation and soil erosion on the hillsides, and (b) increase the incomes and quality of life of small farmers living on the hillsides. These objectives are complementary. Deforestation and accelerated soil erosion are symptoms of broader problems that leave poor households with few alternatives to exploiting hill slopes and marginal lands in a desperate attempt to feed their families. When farmers develop sustainable agricultural systems, their soil maintains its productivity and the need to move to new lands is greatly reduced (consequently reducing deforestation and soil erosion). However, reduction in deforestation is not the same as forestation and both are equally important. Reduction in deforestation must precede forestation; a basic production system must be stabilized and made sustainable so that successful, alternative land management activities can then be introduced with a reasonable expectation of adoption.

Currently, FPPL counts various output measures, such as meters of live grass barriers, number of new cook stoves, and other related activities. Where possible, these output measures should be converted into improved outcomes for villagers and their environment. An analysis has shown that the benefit cost ratio

for increased agricultural income at the village level using environmentally friendly practices (including the cost of the FPPL extension program) is 1.4 (Hanson 2000). Economic benefits associated with improved water quality and protection of other natural resources should be estimated and added to this calculation.

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# Venezuela: Reforming National Extension—Recent Experience


Miguel Saviroff and Eduardo Lindarte


In the early 1990s Venezuela attempted to reform its public sector agricultural institutions. One target was the State Extension System that had come under budgetary strains and was benefiting only a few farmers. A new Agricultural Extension Program that began in 1995 with funding from the World Bank, was intended to assist poor farmers in the adoption of improved technology enhancing their productive efficiency and economic welfare; and improving the environmental sustainability of their farming operations. The project supported the establishment of a new decentralized public agricultural system through funding for technical assistance, incremental staff costs, ancillary equipment, and other operational costs. The new system placed key responsibility and decision-making powers for implementing extension programs at the local municipality (district) level, while also strengthening state-level offices to support municipal programs. In addition, producer associations were established to help local authorities manage extension services.

The Venezuelan reform initiative combined decentralization, privatization, and cost sharing by different government levels, agencies, and beneficiaries. Extension service provision was to be the responsibility of the Foundation for Training and Innovation for Rural Development (known by the acronym, CIARA). Private service providers—private companies or nongovernment organizations (NGOs)—sign contractual agreements with CIARA to carry out extension work in the municipalities. State and municipal participation is also established through contracts and cost sharing was introduced through municipal Civil Extension Associations (Spanish acronym, ACEs). Reform began in 1994 at two pilot locations in the states of Barinas and Aragua.

## Origin of Reform

In the early 1990s, the government initiated reform of the agricultural public sector through an Agricultural Sector Investment Program (ASIP) with funding from the World Bank and the Inter-American Development Bank. This program did not include an extension component and instead Venezuela later submitted a request for World Bank help in reformulation of its public extension service. The Ministry of Agriculture and Livestock (MAC) issued policy guidelines expressing the intention to reform extension services, and then established a special committee to review the condition of agricultural extension, and propose a new structure for the program. This committee included officials from agricultural institutions, producers, extension specialists, and representatives from the World Bank. A project agreement was signed in 1995 for a project with a total cost of US$80 million, US$39 million to be funded by the World Bank.

### *Previous Situation*

Agricultural extension services in Venezuela were first started in 1926 and managed through a Directorate of Extension at the MAC central offices in Caracas. The service was inefficient, costly, and highly bureaucratic, and only covered around 10 percent of the targeted audience, mostly the wealthier farmers. The program operated from the Ministry's offices at the state and municipal levels. Although this de-concentration of activities allowed for a MAC presence in the regions, it did not amount to genuine decentralization, since it remained a top down organization with all decision-making taking place at the central level. No authority was delegated to municipalities to allow for independent program planning or budgetary flexibility at local offices. Extension agents usually did not live in the communities they served. They were inadequately trained and poorly motivated. Many were laid off during the 1990s, and by 1993 the program had practically disappeared. At that time the municipal offices were formally discontinued.

At various times, other agencies of MAC also engaged in specialized forms of agricultural extension. These were managed independently by the National Agrarian Institute (IAN), the Agricultural and Livestock Credit Institute (ICAP), the National Fund for Agricultural and Livestock Research, and commodity development funds, such as the National Coffee Fund (FONCAFE) and the National Cacao Fund (FONCACAO). Each of these efforts was managed separately with few or no links to other programs.

### *Problems and Opportunities Underlying Reform*

The decline of extension and its virtual disappearance by the early 1990s was a visible example of policy failure in the sector, and a political thorn in the flesh for successive governments attempting to deal with the sector. Time and again half-hearted attempts were made to reinvigorate the service, but these failed to

stem the decline, mainly due to lack of political commitment, continuity, and funding. In addition, since the 1980s, widespread criticism and doubts regarding the nature, role, and usefulness of extension itself were being raised worldwide, and public extension services almost everywhere were perceived to be in crisis. However, perhaps the major difficulty was due to a more general crisis in MAC, where an overblown bureaucracy derived from political patronage practices of the past proved unsustainable at a time when budgets were contracting and the economy was subject to increased volatility. Despite widespread awareness of problems, change was difficult given the extreme political and economic volatility during the decade. Consequently, extension reform was held back both by the need for broader public sector reform and by uncertainties concerning the appropriate role, scale, and operating modalities of a reformed extension service.

As a political decision in favor of MAC, reform eventually emerged in the 1990s and so did the climate for reforming extension. This was facilitated by World Bank funding and by the active efforts of a small, but influential elite of extension leaders. The reform in turn generated opportunities for other actors. For the central government, reforms offered an opportunity to reconstruct MAC's grassroots network for identifying needs and accessing information useful for other development programs. For state and local authorities, reforms provided an opportunity to be seen as promoting economic development and servicing their constituencies (although some took advantage of this for political proselytism). For former extension agents, the reforms generated opportunities to create their own private firms or to seek employment with other new agencies.

## Major Changes Introduced

Under the previous extension system, funds were transferred from the Treasury directly to MAC to operate the extension program. Extension agents were hired directly as employees of MAC. This translated into a large central payroll under tight budgetary conditions, and eventually the funding provided fell short of what was required to operate an effective program. With the new project, funds were transferred to CIARA to contract executing agencies, which in turn were able to hire well-qualified extension agents by offering improved benefits and supervisory conditions.

By late 2002, a total of 122 municipalities had executing agencies implementing extension programs. At start up of the reformed extension program in 1995, the program focused on improving agricultural production; in 1999 a new government shifted to a rural development strategy where gender equity, environmental education and social change became the main objectives. Key changes introduced in the reform include:(a) a new, smaller and de-centralized institutional system targeting poor farmers and smallholder agriculture; (b) a co-financing matrix under which states, municipalities, and farmers would all share in financing a gradually increasing percentage of the cost of the system, allowing the national government's share to decline; and (c) reliance on the private sector for the actual provision of services.

### *Reform Measures*

The core of the reform aims at decentralization. As the responsible institution, CIARA contracts with and pays executing agencies that implement the extension program. CIARA also enters into agreements with state and local governments, and the civil extension associations (ACEs) for them to contribute funding to the program. The local level organizations participate in planning, implementing, and evaluating the program. The project has sought to redefine and reconstruct state offices and their capability to assist local agencies and provide them with technical support and training. Participation of producers, civil authorities, and other stakeholders united in the civil association seeks to enhance client satisfaction and

raise accountability of executing agencies. In the future, with more financial support from beneficiaries, these associations are expected to be able to contract with the executing agencies themselves.

Privatization allows private providers to offer publicly financed services and takes advantage of their efficiency and flexibility in executing programs. Cost-sharing brings together the federal, state and municipal governments, along with participating farmers themselves with an initial expectation that the local share of funding would rise over time from roughly 13 percent in year one to 48 percent in the final year of the project.

### *Parties Involved*

Private companies, NGOs, universities, farm organizations, and private extension companies can act as executing agencies. Government research organizations provide Subject Matter Specialists (SMS), as short-term technical consultants to address problems and issues that are national and strategic in scope. State and municipal governments participate in funding, planning, and supervisory activities. Farmer beneficiaries form Civil Extension Associations (ACES) at the individual municipality level to plan and oversee extension activities which include baseline needs assessment. In the future, the ACEs are expected to take full responsibility for the extension program, and perhaps establish their own executing agencies.

The process of hiring an executing agency starts with a request from municipal and state authorities to CIARA to establish an extension program in the municipality. CIARA initiates a contracting process, developing a terms of reference and advertising a call for proposals through a widely distributed news release. Interested parties (on average about 15 per call for proposals) submit cost and technical proposals with precisely defined objectives for training, technical assistance, and technology transfer. Three finalists are selected (assuming enough qualified firms apply) and are then subjected to a further comparative assessment including interviews and screening of prospective extension agents. A contract is then issued to the best-qualified firm.

### *Local Project Formulation*

In each municipality, initial analysis proceeded through brainstorming meetings, workshops, and field trips to rural communities to review conditions with producers and local government officials. A working committee comprised of government officials, extension specialists, legal consultants on decentralization, representatives of the World Bank, educators, as well as others were responsible for project formulation. Ultimately, despite selective consultations, project formulation remained mostly a top-down process. The consultations did not cover every municipality and included a number of isolated actions with little or no continuity. A true bottom-up program formulation became a reality once a municipal agricultural extension office was established, and the implementing agencies initiated a participatory needs assessment process. In each participating municipality, the needs assessment process led to an annual municipal project proposal outlining objectives and a plan of activities. This proposal along with a budgets and resource requirements would be submitted to the local Civil Extension Association (ACE) Board for approval and then sent on to the state level for approval and to obtain matching grant funds.

## Program Impacts

The establishment of the extension project as a viable working operation has been an important learning process and may in itself be the main impact of the reform. Notwithstanding ups and downs, due to interruptions in the flow of funds and changes in policy guidelines, the program has made substantial

achievements. Currently the program covers 45,000 users working with 471 local projects in 122 municipalities in 18 of the country's 22 states. The 488 trained professionals hired by the executing agencies as field extension agents represent an institutional platform that benefits both national and local governments in executing rural programs. The program monitoring systems indicates that it has disseminated 4,126 new agricultural practices with nearly a 50 percent adoption rate. This is hardly a meager accomplishment in a country where political patronage and corruption linked to the centralized allocation of large government oil revenues have created adverse conditions for decentralized public sector operations. A further impact has been enhanced collaboration among extension service providers in the program, the national agricultural research institute, and national universities.

The extension program has not achieved all of its goals. Eighty-nine private executing agencies are operating in 122 municipalities, as compared to an original target of having the program active in 180 municipalities by the end of the sixth year. Each and every municipality was supposed to have had an operational Civil Extension Association (ACE) in place by the end of six years, but at present only 68 ACEs are active in planning and carrying out the extension work. The goal of having the ACEs hire executing agencies directly has not been achieved.

Where they have actually been implemented, cost-sharing arrangements have allowed for a closer relationship with local governments. The central government still covers the highest share (94 percent versus an agreed 70 percent) of program costs. State governments have contributed only 23 percent of agreed upon US$2.7 million contribution and municipalities have contributed just 8 percent of their expected US$3.4 million contribution to the program. Both lower levels of government blame their contribution shortfall on the lack of central government support for the decentralization process. Beneficiaries' contributions have been minor, amounting only to 0.27 percent of the expected US$678,000 of co-financing. One rare exception is the agricultural state of Portuguesa, which has assigned eight state level employees to eight of the 14 agricultural municipal extension offices and is paying the full salaries of these agents from the state budget. Other states still face difficulties in committing fully and contributing their own limited funding to the extension project.

The program has enjoyed social recognition and approval from many of its beneficiaries who feel that it has helped them improve their quality of life. The increased program focus on gender and the environment has heightened recognition of the productive role of women and youth, and promoted an enhanced awareness of environmental conservation issues. Programs show a positive trend toward a greater participation of women and youth in income generating activities. State governments have hired state extension coordinators and assistants wherever the number of executing agencies in a state is greater than six. These coordinators concentrate on supervisory activities. Two additional specialists planned for each state office have not been appointed. At the municipal level, authorities have often taken longer than expected to appreciate the underlying principles and importance of the program. The CIARA management information systems indicates the following accomplishments against program performance indicators: (a) an increase of 42 percent in annual farm income; an increase of 54 percent in average crop productivity in relation to the base year; an increase of 127 percent in average livestock productivity in relation to the base year; a 21 percent share for women in program participation in productive activities; and a total of 68 organizations created or strengthened by the program.

One major problem is that the program is now in its seventh year without an established, methodologically well-defined reporting system in place for tracking impact indicators. Because of this, the reliability and validity of impact claims made by CIARA remain unsubstantiated at present. For example, monitoring indicators indicate a four percent reduction in agrochemical use, as compared to

commercially recommended rates -- a result presented as a program impact of conservation education programs. Nevertheless, and aside from whether this may or may not represent a random fluctuation, it is not clear whether alternative explanations such as the rise in costs of agrochemicals or declines in real farmer income could be the real reason for the apparent reduction in pesticide use. Work is currently underway on impact assessments of productivity increases for different crops as well as their income effects.

The professionalism of extension agents has improved. Extension agents are supposed to receive in service training courses each year, and attend short courses and workshops. However, this training goal has been only partially achieved. All parties involved show more commitment than previously to extension programs. Community motivation is higher, as reflected in higher attendance rates at meetings and the number of farmers that participate effectively in expressing their needs. Farmers increasingly accept extension agents as members of the community, in part, because of the fact that the agents are required to reside on location.

## Major Sources of Difficulty

The rate of establishment of ACEs has been slow. In seven years, only 38 percent of the initial goal has been achieved. A second difficulty concerns political commitment by successive governments. In 1999 a new elected government took over with a new political movement and a large majority of votes. Local governments were not elected at the time and remained in the hands of other parties. The approach of the new party in power favored slowing down decentralization. Political confrontation between central and local governments worked against the extension program until local government elections increased the number of state governors and majors from the official party. However, this did not translate into favorable policy changes toward decentralization.

In 2001 budget funds from Venezuela for the project were cut in half and their flow was interrupted several times. Central government's neglect of decentralization, expressed in denials and delays in fund transfer to state governments, has reduced the capacity and commitment of the states to fulfill their responsibilities for hiring SMSs and contributing funding for the program. As a result, once the ACEs approve an annual plan of activities for an executing agency, this is then sent directly to CIARA for funding. This undermines the principles of fiscal decentralization and postpones financial independence from CIARA.

## Lessons Learned

A number of lessons have become evident over time. They include the following: (a) The usefulness of dealing explicitly with social issues, such as organizational development, women's participation, leadership development, small business development, and the promotion of public services; (b) the need to continue improving the independence and accountability of the national organizational structure responsible for supervising and regulating the program; (c) the need to consider the effects of and linkages with broader political, economic, and institutional variable on program design, implementation and evaluation; (d) the need for good empirically grounded studies and guidelines for implementing agency selection linked to performance characteristics and requirements.

Key tools or mechanisms used to initiate and guide this Venezuelan reform included: (a) participatory methodologies for diagnostics, work plans, monitoring and evaluation, and (b) training at all levels of the program at the central level, for the specialists in the coordination unit of the program; at the regional

level, for state coordinators; and at the municipal level, for extension agents and local authorities. Critical success factors have included the following:

- Establishing a basis for decentralizing the program and its operation through executing agencies and the civil extension associations. Rural communities are now able to participate in the planning and implementing of projects according to their needs.
- Although no university as of yet offers a complete formal curriculum or program on extension, the enhanced training of extension agents, even through ad hoc, occasional and often unfocused efforts, has increased their motivation.
- Improving inter-institutional coordination among national, regional and local levels of government has led to identification of some new areas in which partnerships are important, as with the Ministry of Health, Education, and Infrastructure.

### *Reform Sustainability and Replicability*

Program reforms have a good chance of eventually becoming sustainable, because of the fact that the program has developed a solid anchor with its multidimensional relationship across government levels and with reform beneficiaries. As political turmoil throughout the country settles, participation of the three levels of government and cost sharing should become fully established and allow for a greater privatization over the long term. As the rural organizations created through the program become sustainable, so will the extension program. For instance, local leadership development in the Andean states offers a promise of program sustainability since they have adjusted best to market-induced changes in vertical production chains. These states have ventured into cooperative arrangements and information systems to improve marketing in vegetable production areas. Attention to socioeconomic and ecological aspects of the production systems is crucial to agricultural sustainability, and this in turn helps give a solid grounding to the extension program.

Notwithstanding the above, because of the lack of stability in central government funding and delays in developing the cost-sharing arrangements, the CIARA extension program sustainability will remain highly uncertain for at least another transition period after the World Bank project funding ends.

### *Replicability and Scaling-Up*

Privatization and cost-sharing elements of the reform can be replicated elsewhere. Indonesia and several other countries have shown interest in the Venezuelan reforms. Nevertheless, important to replicating this model elsewhere would be an improved knowledge base on the factors affecting executing agency performance. This would call for comparative studies of the experiences and impacts under different types of executing agencies and across regions, production systems, local projects, and types of farmers. Case studies on individual municipal projects could look at (a) the executing agency selection procedures and analyses of the competitive bidding processes/conditions; (b) internal executing agency characteristics; and (c) community, farmer and agro-ecological conditions or patterns that affect extension performance and impact. Such studies have apparently not been carried out.

Beneficiary participation gives the reform its most innovative and promising features. Scaling-up the reform would require an improved central organizational mechanism for implementing and supervising the program in ways that are both more independent and accountable than at present.

### *Guidelines for Others Undertaking Extension Reform*

Reform managers need to take a broad view of extension services when planning for reforms. The client base goes beyond that of the "male-head-of-household" and the agenda goes beyond the traditional agricultural production focus.

- Program initiatives promoting productivity and profitability need to go hand in hand with rural development activities that emphasize aspects of human and social development.
- Increased efforts are needed to help small farmers and communities organize and draw on group dynamics, identify shared interests, and create demand for extension programs.
- Encouraging small farmers to practice sustainable agriculture can help to maintain soil, water, and other natural resources, while increasing production efficiency.
- The access of rural women and youth to extension services is enhanced by mainstreaming women's programs, identifying potentially differentiated needs for these groups, conducting additional gender-sensitizing programs for policymakers and implementers, and maintaining program flexibility in dealing with situational specificities.

Venezuela's decentralized and privatized extension program found a number of administrative strategies or activities to be important to efficient and effective operations. These would indicate that similar programs should:

- Train extension agents on individual and group techniques for client need assessment.
- Promote client participation and control over programs to avoid excessive turnover of extension agents replaced for political reasons when governments change.
- Foster new organizations so that service delivery can be channeled through a variety of types of farmer organizations or groups.
- Require extension agents and their families to reside in rural areas, encourage them to act as role models for leadership in the community, and help them have access to their audiences during normal off hours such as at night and on weekends. A residence bonus incentive for the extension worker facilitates this.
- Implement a well-defined system of human resource management. Proper planning and management of human resources within extension organizations is essential to increase the capabilities, motivation, and overall effectiveness of extension personnel
- Build effective partnerships with local nonprofit organizations to diversify funding for program sustainability.
- Prepare a handbook for administrative field managers to address the following subjects:
    - Financial guidelines for executing agencies accounts and contracts, budget information, and guidelines for processing travel expense accounts.
    - Personnel information guidelines and information on hiring, wages, performance evaluation and management, promotion process, educational opportunities, and other policies of importance to extension employees.
    - Insurance.
    - Required program plans and reports.

- Office management guidelines
- Specific municipal and regional data, such as key client and stakeholder contacts, production and client databases, etc.

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# Private Market-Oriented Extension Services

# Mali: The Business of Extension Reform—Cotton in Mali

Jim Bingen and Edmond Dembèlé

The reform of the cotton extension (*conseil agricole)* program in Mali[20] was driven by a broadly accepted recognition that the traditional cotton extension program had not only become too costly, but was also no longer responding to the production needs of most cotton growers. Moreover, it is generally believed that a significant reorganization of the current cotton extension program is required to deal with continuing decline in both cotton productivity and soil fertility. In order to meet these multiple objectives, the extension reform struggles to balance a system that operates in response to growers' more general agricultural needs and interests, and a system that allows the government and the parastatal cotton company to retain their economically strategic interest in controlling the quantity and quality of cotton production as well as cotton marketing. In other words, the reform program seeks to balance the continuation of publicly funded and delivered services designed to help meet the country's economic objectives and a privately supported system that is more responsive to growers' needs.

In order to achieve this balance, cotton extension in Mali will be divided into two types of services. One commercially oriented parastatal company service will be based on a client-supplier contractual relationship with growers for the production and marketing of cotton. A second, independent, private service will respond to growers' broader needs for agricultural information. Clearly, this type of reform requires a profound change in both the traditional ("command and control") role of the *encadreur vulgarisateur* or *moniteur* and in the village-level structures of paid individuals who serve as the primary points of contact for these new agricultural agents or counselors.

## Background to Reform

Beginning in the late 1960s, the Malian Cotton Company (CMDT, *Compagnie Malienne pour le Développement des Textiles)* established an extension services system modeled on the well-known *encadrement* agricultural system that was used throughout Francophone Africa.[21] In this distinctly "top-down" and paternalistic system, village-level technical agents guided and supervised the application of specified cultivation and harvesting practices in order to meet specified production quotas and quality standards. The company's monopoly on cotton marketing facilitated the collection of a grower levy to offset some of the costs of this parastatal system (see Bingen 1985). This tightly organized system of control over peasant farmers has been a key factor in assuring the company's success in the international cotton market (Bingen 1998), and in enabling cotton farmers to become some of the most advanced users of agricultural technology in Mali. However, at the same time, it has been known for several years that this system has not successfully addressed the issue of soil degradation nor the concerns of an increasing number of growers who no longer need close supervision of their cotton production and harvesting practices (Bingen et al 1995; Bingen et al. 1993). Furthermore, for several years both the government and

[20]The description of the reforms draws largely from Mission de Restructuration du Secteur Coton. 2002. Rapport Conseil Agricole. SOFRECO. Bamako, Mali.

[21]The CMDT was created in 1974; its extension approach had evolved from programs directed by the CFDT, the Compagnie Française de Développement des Textiles, (now DAGRIS), since the 1950s.

the CMDT have been seeking ways to develop a "win-win" approach to cotton extension, rural development, and marketing that would conform to the country's economic structural adjustment agreements.

## Brief Description of Reform

The cotton company's system of contracted service delivery essentially puts the traditional cotton extension structure on a business footing. Based on contracts negotiated with each village associations (AV), the company assures the supply of required supplies and equipment and establishes a continued monopoly and guaranteed market for all cotton. Approximately 9,000 village-based agents of the company are responsible for collecting and compiling information and data related to cotton production. On the other hand, agricultural advisory services are designed to help some farmers, especially long-standing and larger cotton growers, diversify their crop production and to promote other income generating activities such as livestock production, honey and tamarind collection, and village-level food processing. Over time, it is expected that the advice received by these farmers will enable them to become real farm businesses (*véritables enterprises*).

Two principal types of advisory services are planned. The first type is based on village-level professional associations that are capable of requesting and paying for specific advisory services from a local agricultural advisory service center (*CPS, Centre de Prestations de Services*). The second type relies on the capacity of small farmers to hire individual advisers through an NGO or a specialized consulting agency. In addition to dealing with income-generating activities, it is expected that advisers will also be available for "public activities" such as work on roads, water and irrigation schemes. It is expected that the implementation of this system will occur over a period of five to six years, during which time it will be necessary to (a) strengthen village-level farmer associations; (b) establish advisory service centers; and (c) train advisory service village representatives.

## Impact of Reforms

Three somewhat comparable agricultural advisory projects offer some basis on which to assess the probable impact of the cotton extension reform program.

In 1992 the French Development Agency (AFD) started financing a Rural Management Project (*Projet de Gestion Rurale, PGR*) designed to strengthen the role of village associations in managing cotton input supply and marketing services through newly created Management Centers (*Centres de gestion, CG*). After 10 years, 1,634 village associations are organized around 26 CGs that are in turn federated into four regional unions; 40 advisers (with post-secondary diplomas) have received one year of training, and each one is assigned to support 30 to 40 village associations.

Each center receives a direct and fixed allotment from Malian Cotton Company marketing earnings and each village association is expected to make a formula-based contribution to its center. Many centers are not yet financially autonomous and several have been unable to cover the costs of their advisers. Explanations for these problems vary, but it does seem clear that many cotton growers even after 10 years of experience remained unconvinced of the value received from paying for this agricultural advisory service. Moreover, the employment statute for these agricultural advisers does not provide social security or retirement benefits and thereby jeopardizes the long-term commitment of the advisers to the program.

In the Office du Niger, the Niono Service Center Project (*Projet Centres de Prestation de Services de Niono, PCPS*) was launched in 1995 and over 40 percent of the farmer organizations in the area are now

affiliated with a service center (CPS). The centers are responsible for several managerial and organizational support activities for farmer organizations, which include marketing and contracting for functional literacy training, while the Office du Niger retains control for all technical advisory services related to rice production.

The PCPS centers are able to cover only 25 percent of their operating costs and the advisers generally seek positions elsewhere that at least offer social security and retirement benefits. In addition, relations between the centers and village associations continue to be seriously constrained by the overall low level of literacy among rice growers. Perhaps most important is the perception by many growers that the centers simply represent another way for the Office du Niger to reduce its administrative costs and manage rice production and marketing rather than truly share decision-making responsibilities with them.

Finally, the Private Sector Livestock Support Project (*Projet d'Appui au Secteur Privé pour le Elevage, PASPE*) financed by AFD in the Sikasso, Mopti and Keyes regions, focuses on supporting private livestock advisers and facilitating collective purchasing of veterinary supplies and products. Given the long history of fee-for-service arrangements in the livestock sector, it appears that the PASPE system responds effectively to the needs of the participating advisers as well as the livestock producers.

## Sustainability and Replicability

In order to address issues related to the sustainability and the replicability of the cotton extension program in Mali, it is useful to review briefly the somewhat similar, albeit recent, reforms in Bénin, Burkina Faso, and Côte d'Ivoire. The economic structural adjustment agreements in each country has led to major cutbacks of field-level advisory personnel and a significant re-organization of cotton advisory services.

In Bénin, a professional cotton business association Association Interprofessionnelle du Coton (AIC) that includes a federation of cotton producers unions Fédération des Unions de Producteurs au Bénin (FUPRO), and a professional cotton ginners association Association Professionnelle des Egreneurs du Bénin contracted directly with former cotton technical agents to provide required advisory services. The advisers follow a Training and Visit methodology and limit their work to cotton production and marketing. This system appears simply to have transferred advisory responsibility from a government agency to the AIC.

Through their National Union of Cotton Producers (Union Nationale des Producteurs de Coton du Burkina (UNPCB), Burkinabé cotton growers are 30 percent shareholders in the national cotton company, SOFITEX. This share does allow growers some choice in the operation of the company's field level technical advisory system. In response to grower interest, a grower-company partnership tested a more multifunctional advisory service in 2000. The difficulties encountered in this effort highlight the critical role in training the advisers for their new extension role.

In Côte d'Ivoire growers are organized through cooperatives, of which the largest is the Savana Regional Union of Cooperatives (Union Régionale des Entreprises Coopératives de la zone de Savane de Côte d'Ivoire, URESCOS-CI). Although this cooperative includes 80 percent of the country's cotton growers, all advisory services are still managed by two private companies and the reorganized state company. All advisory activities focus on cotton.

These reforms in Francophone West Africa appear comparable to other current extension reform efforts (see Farrington *et al.*, 2002). Although they are relatively recent, and provide little evidence for assessing their sustainability, they do help to address two critical questions in extension reform. First, Mali's reform program retains a contractually based and company-focused program to assure and protect the important

role of cotton in generating foreign exchange earnings for the country. Second, a more broadly-oriented and separately financed service could be responsive to the changing livelihood contexts (beyond crop diversification) of those living in the cotton zones (see Farrington et al. 2002).

## Lessons Learned

Despite the immediacy of the concerns with reforming and assuring agricultural advisory services – to fill-in the gaps left as a result of personnel cutbacks, to respond to pressing agro-ecological problems, or to maintain foreign exchange earnings – it appears there is no substitute for longer term investments in human capital. Most reform experiences to date underscore the fundamental importance of grower literacy and numeracy skills, as well as new approaches to training and supporting field-level advisors for a more responsive and accountable approach to agricultural extension. The employment status for new advisers affects their commitment to working in reformed extension programs.

Most reform programs have not yet become self-financing. In some cases this appears linked to growers' concerns about the immediate value received from directly paying for an adviser. The "privatized" system with livestock producers appears to work because it is based on a concretely identified fee-for-service basis.

Opportunities for direct farmer involvement in the design and management of extension reform programs seem dependent upon the establishment of a corporatist relationship between farmers, government, and production and marketing companies. Governments, parastatal and private companies appear more comfortable with "professional organizations" than they do with "claim-making" producer unions.

## Guidelines for Reform

There are at least five general guidelines that deserve more consideration in both current and future reform initiatives.

- Extension reform discussions curiously appear to take place independently of governmental decentralization programs and policies. Progress toward decentralization varies widely across Africa, but more reform programs could identify advisory responsibilities that could be transferred to decentralized local authorities. As related work on farmer associations in Rwanda and Senegal shows, farmer involvement at the local level represents a heretofore untapped resource for rural and democratic development (Bingen and Munyankusi 2002; N'Diamé et al. 2002).
- The critical connection between extension reform and ongoing agricultural research needs to be re-established. The critical and continuing contribution of agricultural research to cotton programs throughout West Africa is widely known, but seems to have dropped out of current deliberations on extension reform.
- Training and continuing education for farmers and for new advisers deserves considerably more attention in reform programs.
- The employment status of new advisers needs to be reviewed and seen to be competitive with alternative employment opportunities.
- Most of the current reform discussions rely on a contractual relationship between an agency or adviser and growers as the means to assure accountability between growers and advisers. A more

direct policy and program decision-making role might provide an important incentive for grower financial support for extension reform.

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# Niger: Market-based Irrigation Technology Innovation for Smallholder Farmers

Hope Neighbor and Daniel Sellen

The mind's eye image of Niger is of endless stretches of sand. Three-quarters of the country's 1.3 million $km^2$ territory is indeed desert, and the land suitable for rain-fed farming has been shrinking consistently since the late 1940s. Rain-fed crops need a bare minimum of four hundred millimeters of rainfall each year. This threshold has inched southward over the past fifty years, resulting in an ever-smaller area of land available for rain-fed farming. Even in the cultivable areas, highly variable and declining rainfall, plus frequent drought cycles, make rain-fed agriculture an extremely risky enterprise.

With eight in ten Nigeriens earning their living from agriculture, the development of alternatives to rain-fed farming is critical to sustaining the livelihoods of the majority of the population. Small-scale, private irrigation has emerged as one such alternative. Niger has 270,000 hectares of irrigable land, with considerable potential from groundwater resources and numerous seasonal sources of surface water. Only 22 percent of this land is being fully or partially irrigated. Easily exploitable water resources still abound along the Niger River and in the areas of the Dosso-Gaya Dallols, the Maradi Goulbis, and the Zinder Koramas, where ample renewable shallow aquifers remain largely untapped.

*Government policy framework.* Niger's national irrigation sub-sector strategy offers a strong framework for support to private, small-scale irrigation. The government's vision for irrigation in 2015 is (a) driven and managed by the operators themselves, with a reformed "back-seat" role for the State; (b) low-cost, with complete water management; (c) fully evaluated in terms of economic costs and benefits; and (d) environmentally sustainable. Small-scale irrigation is expected to play a central role in helping the government to achieve its agricultural sector goals. The government hopes to promote sustainable growth to meet the demands of an increasing population, while improving food security, alleviating poverty, and increasing exports.

*Past irrigation sector experience.* The government's emphasis on private, small-scale irrigation is born of its experience with large, state-run irrigation schemes. Its National Office of Hydro-agricultural Perimeters (Office National des Amènagements Hydroagricoles, ONAHA) has run publicly funded, medium-to-large scale full-water control schemes. Judged by their technological capacity alone, the schemes had good prospects, but they have proved extremely costly and economically nonviable. These schemes are plagued by weak institutional support, poor marketing arrangements, and the lack of cost recovery measures to finance operations and maintenance. The government also supported small- to medium- scale irrigation cooperatives on the perimeter of its large-scale projects. ONAHA was to provide technical extension support to these schemes, but with no budget nor incentives for efficient service provision, ONAHA's technical support has been quite weak. Moreover, the cooperatives are state-controlled and have not been able to fully control nor to profit from their enterprises in a sustainable manner due to state intervention and political interference in cooperative affairs.

## Current Reforms

In the early 1990s, the government and the World Bank began to consider support to private, small-scale irrigation in order to increase Niger's agricultural productivity, strengthen food security, and build

farmers' and manufacturers' productive capacity. The hope was that this support would capture irrigation's potential, while avoiding the inefficiencies seemingly inherent in clumsy, over-large public schemes. In 1996, the Government of Niger and the Bank launched the Pilot Private Irrigation Project (PPIP). The PPIP's main objective was to test the adaptation and dissemination of small-scale irrigation technologies, as well as to test mechanisms for private implementation of a public project. The project introduced the treadle pump, which was practically unknown in Niger. It also promoted the tubular borehole, submerged pumps, motor pumps, and irrigation by way of buried pipes as components of comprehensive on-farm water systems.

The Private Irrigation Promotion Project (PIP2) builds upon the pilot project and increases its geographical coverage. Launched in 2002, the PIP2's objective is to increase the production and profitability of high-value, irrigated crops by smallholder farmers through their use of improved irrigation technologies. PIP2 goes a step further than PPIP, aiming to help farmers achieve development benefits through the adoption of improved technologies. It seeks to improve rural employment and farm incomes and slow rural-to-urban migration; increase exports; increase productive private investment in agriculture; facilitate farmer empowerment and collective action; and, critically, improve the food security and nutritional status of Nigerien households.

The Government of Niger, the World Bank, the Coopération Française, and farmers' organizations all contribute to project costs totaling US$48.39 million over five years. Investments cover manual and mechanized irrigation promotion, research and development of new technologies, project management, capacity building, micro-finance, and environmental protection. The manual and mechanized irrigation components include technical and training support to beneficiaries on complementary activities, including development of cost-efficient techniques for crop conservation and storage, agro-processing, building marketing expertise and linkages; publicity and promotion of improved technologies; and creating capacity for maintenance and repairs services in the irrigation sub-sector. Because women involved in market gardening tend to have smaller plots, PIP2 will emphasize the identification of manual technologies acceptable to women.

As with PPIP, PIP2's main beneficiaries are smallholders, not large farmers. Farmers who own or have user rights to more than ten hectares of land will not be eligible for project assistance. Most of the pilot project's farmers were near the low end of the land holding size distribution, gardening patches that rarely exceeded half a hectare, or the size of a football field. A 1999 pump user survey found that the median garden size was only 0.055 hectares, increasing to 0.138 hectares with use of a treadle pump: PIP2 is implicitly poverty-targeted.

Although the project's main beneficiaries are producers of irrigated goods, downstream participants in the commodity chain (transporters, processors, wholesalers, and retailers) will share in the benefits. Similarly, those involved in providing inputs (seed, fertilizer, pump manufacture and repairs) will also benefit.

## Reform Innovations

Four innovations set Niger's reforms apart from those of other irrigation schemes: (a) project administration by a private agency; (b) demand-driven distribution and private ownership of irrigation technologies; (c) progressive adoption of the equipment; and (d) availability of simple, locally made, and affordable technologies.

The primary innovation was to shift project administration from government to a private agency, in this case the Nigerien Association for Promotion of Private Irrigation Association Nigérienne de Promotion de

l'Irrigation Privée (ANPIP). Niger's Ministry of Agriculture operates on little budget, with insufficient support and incentives for efficient agriculture extension. Administration through ANPIP helps a private sector management style, and the legal and administrative flexibility to execute the project.

The project's second innovation was to promote private ownership of treadle pumps, distributing them through a demand-driven model. Small-scale irrigation projects often provide pumps to a farming collective. These models tend to be unsustainable--collective's members have little incentive, individually, in maintaining what is essentially a public good. By supporting private ownership of the improved irrigation technologies, the pilot project circumvented this "tragedy of the commons" problem. In relying on the expression of genuine demand to decide where to support local pump manufacture, the project increased the chances that the nascent treadle pump market would be sustained in the long run.

The third change, in this case gradual, was to support the progressive adoption of new, improved technologies. The project helped gardeners to improve their management skills through the use of progressively more complex technologies in much the same way successful private businesses grow. PIP2 will not provide financing to farmers who currently use rudimentary irrigation and want to skip directly to the use of motorized pumps.

The fourth innovation was the availability of simple, locally made, and affordable technologies. The project trained over 50 local craftspeople to manufacture and repair treadle pumps, each in areas where market gardeners were active and expressed hearty interest in purchasing improved technologies. This kept the supply chain between farmer and manufacturer as short as possible, ensuring that pump parts and repair expertise would be locally available. Adaptation to the irrigation technologies also helped reduce their prices. For example, the treadle pump's original price was about US$90. By developing a comparable pump for US$52, the project was able to reach more gardeners.

## Actors in the Reform

The main parties involved in the pilot project were Niger's Ministry of Rural Development, the World Bank, ANPIP, sub-contractors for the manual, mechanized irrigation and credit components, local pump manufacturers and the individual farmers benefiting from the scheme. In the expanded PIP2, the project will actively partner with the International Fund for Agricultural Development's (IFAD) rural finance project. The Coopération Française will also contribute a portion of project costs. An Orientation and Monitoring Committee to act as an advisory group during implementation will include representatives from all public agencies involved in project implementation as well as representatives from the farmers and other stakeholders.

## Who Pays?

Under the project's demand-driven model, individual farmers pay the full market cost of manual and mechanized pumps as well as other irrigation technologies (e.g., tubular boreholes on-farm irrigation systems). Farmers negotiate directly with local manufacturers' representatives to establish the payment prices and schedules. In the expanded PIP2, a credit component will help poorer farmers to purchase irrigation technologies.

## Measuring Performance

The pilot project focused on testing the adaptation and dissemination of mechanized and manual pumps. As such, the project measured delivery by the number of pumps tested, and the number of farmers benefiting from these technologies. The second project, PIP2, will focus more closely on the development of benefits from improved technologies, and will measure those in terms of percentage increase in yields, total production, and percentage increase in profitability of irrigated production. Related physical indicators, such as the number of beneficiaries and land under irrigation, will provide additional information about the project's impact. Process evaluation has and will continue to provide complementary information about project implementation, identifying and attempting to establish the sources of implementation bottlenecks.

## What is the Impact of Reform?

The project and associated reforms have proven quite successful. In large part due to its outstanding role in helping the project to achieve its development objectives, the Manual Irrigation Component's sub-contractor, Enterprise Works, recently won the First Prize Award from the Arab Gulf Program for United Nations Development Organizations' (AGFUND) for a Pioneering Development Project

## Project impact

The most striking impact of the pilot project is the increase in farmers' food security and income. Nigeriens' per capita annual income is US$180. Manual technologies helped farmers to increase their incomes by 256 percent, from about US$173 to US$443. Manual technologies helped farmers to increase the area cultivated by 63 percent, and mechanized technologies facilitated a 24 percent increase in the area cultivated. In all, ANPIP estimated that an additional 1,100 hectares were farmed through the promotion of manual and mechanized technologies. Yields increased by 27 percent for onions and 32 percent for sweet peppers--two crops covering 70 percent of the farmland surveyed.

These results were achieved through the adoption of improved irrigation technologies. Gardeners with half a hectare or more of land could purchase mechanized technologies. More than 1,300 farmers, over 300 of them women, purchased this equipment without direct financial assistance and are applying the new techniques. PPIP's manual technology component, which focuses on farmers with less than half a hectare of land, tested thirteen manual water lifting and seven distribution technologies and promoted the most cost-effective models. Over 1,100 farmers bought manual pumps, using their own resources and a limited number of loans.

Following an aggressive public outreach campaign, ANPIP facilitated the formation of 1,521 economic interest groups (groupements d'intérêt économique, GIE), comprising 15,000 farmers and including 462 women. The project trained 2,990 GIE members in private irrigation development, group management, and administration. ANPIP's own strength grew as a result. Over the course of the pilot project, it expanded from a skeleton organization of ten people to 19 decentralized committees with over 13,500 members.

## Project Weaknesses

The expanded PIP2 addresses the weaknesses identified during the PPIP pilot project. These weaknesses were (a) imperfect access to credit; (b) few land tenure agreements; (c) weak environmental monitoring; and (d) weak monitoring and evaluation.

Although the project's savings component extended 4,000 loans to just short of 8,000 participants, the weakness of Niger's micro-finance network hampered access to irrigation technologies for some farmers. The second project, PIP2, will broaden access to the technologies and related inputs through a matching grant program. Farmers will contribute 30 percent to the cost of irrigation technologies (reduced to 10 percent in exceptional cases). Partnering with IFAD, the project will seek to further develop micro-finance institutions by channeling grants through their networks.

The project also fell short in terms of the number of land tenure agreements secured. When interviewed at project's end, participants stressed that they felt that land tenure arrangements should be resolved through traditional, not administrative, channels. As a result, PIP2 does not include a land tenure security component.

PIP2 seeks to strengthen the environmental component. The Ministry of Hydrology failed to monitor aquifers and pesticide use during the first half of the pilot phase. These responsibilities were shifted to ANPIP for the second half of the project. In order to ensure that aquifers do not run dry and to monitor other environmental indicators, PIP2 will contract an independent agency to do environmental monitoring.

Finally, the project's monitoring and evaluation system was insufficient at the outset. Its output indicators did not reflect a solid analysis of production possibilities, even as revised during the project's mid-term review.

## What are the Prospects for Sustainability and Replication?

PPIP illustrated that privately managed, market-led support to irrigation can promote efficient sub-sector reform. This reform is already "scaled-up" in the form of PIP2, the nationwide expansion of the basic PPIP pilot model. PIP2 has also shifted its focus downstream to emphasize the development benefits possible through use of improved irrigation technologies. Below, we outline the factors that will help Nigerien farmers to continue to use improved irrigation technologies in the long term.

## Demand-driven Promotion and Dissemination Strategy

Enterprise Works (EWW), the sub-contractor for the manual irrigation component, used a demand-driven approach to sustain the use of improved technologies over the long term. Instead of distributing highly subsidized goods with little regard for local interest in irrigation, the project team demonstrated a pump's use in markets and then in communities. It used the demonstration to gauge genuine local interest in the technologies. If, and only if, community interest was positive, the project team identified a local artisan to manufacture the treadle pump. The project trained each artisan in his own workshop, using his own tools. Experience has shown that artisans who are trained in project workshops are oftentimes unable to re-produce the product in their own shops. EWW helped each manufacturer to sell pumps as soon as possible, both to allow him or her to establish working capital, and to demonstrate demand for the technologies. The farmers negotiated prices directly with the manufacturer or his representative and paid

the full market price for the improved technologies. In paying the full price, only farmers working within their means purchased the pump, enhancing the sustainable use of the technology.

### Progressive Adoption of the Technologies

Instead of providing an overly complex technology that many farmers could not use to capacity (or that some would find too simple), the projects help farmers to grow consistently over time. The farmer's phased investment strategy resembles that of a successful private firm. A farmer coming into the project might initially draw water from a hand-dug well using a rope-and-calabash irrigation distribution system. She might then expand her garden by purchasing a treadle pump during the project's first year. From there, she might progressively invest in technology to tap into more water, pump greater quantities of water and distribute it more effectively over the area farmed, gradually increasing the area gardened. This "phased investment" allows the farmer to achieve increasing, sustainable returns over time, without skipping steps and placing the irrigation enterprise at risk.

### Availability of Simple, Locally Available and Affordable Technologies

By promoting simple, locally available and affordable technologies, the project boosts the chances that treadle pumps will continue to be made, distributed and used in small-scale Nigerien agriculture after the close of the expanded PIP2. The pilot project trained local manufacturers to make the pumps. Local manufacture places the manufacturer closer to his clients, increasing his knowledge of the local market. This knowledge, in turn, helps the manufacturer to adapt the pumps to respond to any changes in local demand, contributing to a robust local irrigation technologies market. Demand-based production changes to date include wrapped filters and technical assistance in hand-drilling wells.

The affordability of the treadle pumps, tube wells, and on-farm water distribution systems make the technologies genuinely accessible to farmers. This, in turn, reinforces the foundations of a stable local market for improved technologies. Without project assistance, many farmers are still financially capable of purchasing the basic improved technologies needed to increase their garden's productivity. Thanks to the treadle pump's simplicity, farmers can easily learn to maintain and repair the pumps. Most of the materials needed for repair can also be found in villages.

### Early Monitoring

Early monitoring ensures the development of local capacity for pump maintenance and repair. It also helps the manufacturer to promote the pumps to potential buyers. In the pilot phase, each treadle pump was ideally visited three times (a week after installation by the manufacturer, within a month after and within six months). The manufacturer accompanied the manual irrigation team's extension worker on these visits. This helped the farmer to learn of the manufacturer's repair expertise, enhanced the manufacturer's sales and made the manufacturer more accountable to the purchasers of irrigation equipment by putting them in regular contact. As soon as two to three farmers in any one community were trained in pump operation and maintenance, they began to serve as resource persons for farmers purchasing pumps later.

### Improper Provision or Monitoring of Micro-credit and Matching Grants

By contrast, improper provision or monitoring of micro-credit and matching grants can harm Niger's nascent irrigation technologies market. Few Nigerien farmers have the capacity to garden the half a

hectare that a motorized pump irrigates. If the pumps become available at highly subsidized (affordable) prices, however, farmers might be tempted to purchase them, thus risking an inefficient use of resources and possible default on credit payments. Credit and matching grant facilities must be carefully monitored so that, while deepening poor farmers' access to basic technologies, they do not provide irrigation technologies to farmers unable to manage production at that scale. Nearby projects with easier terms of credit also risk undermining PIP2's efforts to create a sustainable market for small-scale irrigation technologies.

## Environmental Sustainability

The most significant environmental concern is the monitoring of aquifer levels and pesticide use. The Ministry of Environment (MOE) was initially responsible for environmental monitoring, but, after the MOE's lackluster performance during the first half of the pilot project, ANPIP took over monitoring responsibilities. For PIP2, the sub-contractor hired for the environmental component must implement a vigorous monitoring system to guard against depletion of Niger's water resources. The project has also initiated wind and water erosion controls in areas outside of the valleys exploited by the market gardeners. These areas usually belong to owners who take no interest in irrigation and may be reluctant to replace their traditional farming methods. The project's environmental sustainability is at risk if this erosion problem is not resolved.

## ANPIP's Long-term Prospects

ANPIP's long-term sustainability is not assured. The pilot project succeeded in strengthening ANPIP, helping it to grow from a tiny organization to a farmer's association of over 13,500 members. ANPIP is highly regarded by its farmer-members, the government, and the World Bank. However, given its support base of small farmers and the heavy demands in project management and monitoring, it is unrealistic to think that the membership will be able to support these activities without donor funding. In order to become entirely self-supporting, ANPIP would need to evolve into a leaner agency after the close of PIP2. PIP2's mid-term review will take a closer look at sustainability questions.

**Box 2.2 Well-targeted Publicity: Beans and Rice**

The manual irrigation team branded treadle pumps "Niyya da Kokari" (courage and willingness). They commissioned an acting troupe to compose a song about the pumps, and then broadcast it throughout Niger. The "Niyya da Kokari" pumps became an overnight sensation. The phrase was so popular that it passed into common use. At the Niamey bus station, you can now order "Niyya da Kokari" --- the new name for a dish of beans and rice.

Source: Authors.

## Lessons Learned

Several lessons stand out in Niger's irrigation sub-sector reforms. These are applicable for rural development projects in general, as well as for irrigation extension services reform.

1. Consider small-scale mechanized and improved manual irrigation for driving agricultural productivity,

2. especially where rain-fed agriculture is a risky endeavor. Small-scale, market-led irrigation has proved more profitable than large, state-run irrigation schemes.

3. Explore private sector capacity to effectively manage publicly funded development operations. On a complementary note, sub-contract the implementation of project components to competent agencies, to create incentives for strong service delivery.

4. Incorporate a market-driven approach in the provision of appropriate goods and services. The project raised awareness, provided training, and demonstrated new technologies, but farmers and manufacturers were responsible for the direct costs of the improved technologies' manufacture, purchase, and installation.

5. Complement the market-driven approach with support for initiatives beyond the reach of individual farmers and manufacturers. These could include promotion of availability of agricultural credit to finance new technologies; input supply; availability of new storage techniques to handle larger harvests; or a denser marketing network.

6. Use a well-targeted publicity campaign to promote technologies. ANPIP promoted the new national irrigation policy through radio and TV commercials, dissemination of 3,000 copies of a printed booklet and outreach to 2,000 representatives of farmers and administrators and traditional authorities.

7. Encourage progressive adoption of technologies to enhance their sustainability. This has helped manufacturers and farmers alike to extract the maximum benefit from any one technology, instead of skipping steps and using a technology for which they lack capacity.

8. Explore the use of various media to reach non-literate project participants. Only one in ten Nigeriens are literate. With few farmers able to read pump manuals, the irrigation extension team distributed the manual on tape to each farmer purchasing a pump. Its ex-post survey revealed that a majority of the farmers had used the tape and found it helpful in operating and maintaining the pump.

9. Increase access to irrigation technologies through closely monitored micro-credit or matching grant facilities. If micro-credit or matching grants are extended, they must be closely monitored (and high loan repayment rates guaranteed) in order to avoid extinguishing the nascent irrigation equipment market.

10. If farmers' access to project equipment is contingent upon their acquisition of appropriate financing, plan for long-term support to micro-finance networks. In Niger, the consolidation of existing savings and loans associations and the extension of networks throughout the country are prerequisites to the expansion of small-scale irrigation. This will take several years.

11. Monitor environmental indicators, to guard against aquifer depletion, to ensure the safe and measured use of pesticides, and to reduce soil erosion and desertification.

12. Ensure that project design incorporates realistic outcome and output indicators from the outset. Without indicators that reflect a solid analysis of production possibilities, project monitoring and evaluation yields little insight into the implementation process or project impact.

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