



The World Bank

Agriculture and Rural Development Discussion Paper 12
Extension Reform for Rural Development

Volume 5. National Strategy and Reform Process

Case Studies of International Initiatives

William Rivera

Gary Alex (editors)



First printing or web posting: 2004
© 2004 The International Bank for Reconstruction and Development / The World Bank
1818 H Street, NW
Washington, DC 20433
Telephone 202-473-1000
Internet www.worldbank.org
E-mail ard@worldbank.org

All rights reserved.

Agriculture and Rural Development Discussion Papers is an informal series produced by the Agriculture and Rural Development Department of the World Bank. These papers raise concepts and issues for discussion in the broader development community and describe ongoing research and/or implementation experiences from the Bank.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of the Board of Executive Directors of the World Bank, the governments they represent, or the organizations of contributing authors.

The World Bank does not guarantee the accuracy of the data included in this work.

Rights and Permissions

The material in this work is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, telephone 978-750-8400, fax 978-750-4470, www.copyright.com.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

This paper is one of a five volumes in Extension Reform for Rural Development subseries. The other volumes are:

- Volume 1. Decentralized Systems: Case Studies of International Initiatives
- Volume 2. Privatization of Extension 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

Contents

Foreword.....	v
Preface	vi
Acknowledgments.....	viii
National Strategy and Reform Processes.....	1
Denmark: The Role of Livestock Advisory Service and Skills Development..... Sanne Chipeta	6
Mozambique: Building African Models of Agricultural Extension..... Carl K. Eicher	12
Nicaragua: The Agricultural Technology Project	20
Norman Piccioni and Fabio M. Santucci	
Uruguay: Reform of Public Sector Agricultural Extension	28
Santiago Cayota	
West Africa: Adapting Agricultural Extension to the Changing Rural Development Context -- Lessons from the Research-Extension-POs Partnership Network (REPO-Net).....	32
Jean Sibiri Zoundi	
Learning From Case Studies On Extension System Reform	39

List of Tables

Table 5.1. Participation in the Different Workshops.....	34
--	----

List of Boxes

Box 5.1 Overview of the Historic Background.....	8
Box 5.2. The Act of the Advisory Service.....	8
Box 5.3. Toward A New Extension Approach.....	36

List of Figures

Figure 5.1 The Multifaceted advantages of producer and community organizations.....	7
Figure 5.2 The Danish Model	9
Figure 5.3 Trends in Number of Holdings and Advisers.....	11
Figure 5.4: Rural Producers Role in Extension In West Africa	35

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.

John Swanson
USAID/Office of Agriculture

Eija Pehu
USAID/Office of Agriculture
World Bank, Agriculture & Rural Development

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.

We thank the members of the World Bank's Sustainable Agricultural System and Knowledge Institutions (SASKI) Thematic Team (Agricultural Knowledge and Information Systems Thematic Team, formerly the AKIS) for extensive input into discussions on the reform issues. We are especially grateful to Derek Byerlee, Senior Economist at the World Bank, for putting his vision into action by convening the International Workshop on "Extension and Rural Development." We also thank Henry Bahn for speaking to participants about the USDA's Cooperative State Research, Education, and Extension Service and to the members of the Workshop organizing team: David Nielson, Marie-Hélène Collion, Tonino Zellweger, and John Swanson for their contribution to our ideas and efforts in organizing the workshop and assisting in bringing the compilation to fruition.

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 Curre, 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

National Strategy and Reform Processes

Introduction

Five cases included in this section highlight issues related to national strategy and reform processes in Denmark, Mozambique, Nicaragua, Uruguay, and francophone West Africa. This paper will highlight the “reform” processes over time-spans that vary from more than 140 years (Denmark) to around 15 years (Mozambique). The cases are quite diverse and represent various phases and contexts for rural extension system development. Taken together, these experiences highlight some of the key challenges in attempting to develop effective, efficient, and sustainable rural innovation systems.

What emerges from the case studies is that national strategy and reform processes are inherently political and dependent on power relations and interests among the various stakeholders. The dominant players in the case studies are producers who were strong in Denmark, but weak in most other cases; government agencies that were expected to transfer power and resources to producers under the reform agendas; the private sector who was expected to play an increasing role with varying levels of involvement; and donors who would often come across as a strong external agent aiming at shifting power from the state to producers and the private sector. Each of these players were more or less involved in the process and were driving or resisting changes. An understanding of the political economy is fundamental to engaging with and supporting positive change processes.

A number of other common threads run through the case studies. For example, we see that reforms tends to work better where the objectives of change are clear and focused and around which consensus can be found or broad coalitions of interest can emerge to carry the process forward. Most reform processes are presented as being market-oriented (if not market-led, as was the case in Denmark) and demand-driven. Underlying profitability and competitiveness of the sector is critical. Reform of extension must be located in a wider strategy for growth of the agricultural sector. It seems that differential impacts of reform on different types of producers are seldom analyzed; which begs the question: What changes may this mean for poorer producers?

The cases demonstrate that change processes are taking a broader view of extension, both in terms of the types of services demanded and the range of actors in the agricultural sector that need advice (including agri-business entrepreneurs on the input and output sides, though how this can be worked into a national strategy is less than clear).

All processes were either led by producers (Denmark) or aim to increase the level of involvement of producers with varying success. Human and social capital formation among producers, based on market logic, is central, embedded in the types of reforms described therein. The importance of basic education of producers is emphasized by a number of cases.

Increased involvement of the private sector in the delivery of services is common across cases. Yet, their involvement in the strategies presented tends to be based on public subsidy and donor funding. One wonders about the extent to which this distorts markets for advisory services, crowding out the emergence or strengthening of potentially viable lower cost options. Cases suggest that farmers are willing to pay for services that are of sufficient quality and profitability. Often, the assumption is that despite a willingness to pay (should one be demonstrated), there is an inability to pay. This may suggest a credit constraint (i.e.,

a failure in the finance market). Perhaps part of the failure of an advisory service market is based on a failure of inter-linked markets such as financial services. Strategies for more market-oriented advisory services must be based on an analysis of such inter-linked markets to highlight broader systemic failures that hinder extension from being of utility.

Each case is very different and demonstrates once again that there are no quick fixes or magic bullets. What, then, is the way forward for those involved in national strategy and reform processes? Listed below are a few ideas that draw on both good and bad experiences presented in this and other sections:

Recognize that you are in a political rather than a technical process and must try to understand and work positively with the various powers and interests at play. As a development manager build your skills in political economy analysis and negotiation.

Locate the process within in a broader strategy for the growth of the agricultural sector (perhaps even more broadly, linking it with pro-poor growth-oriented poverty reduction strategy processes where applicable).

Base the process on a situation analysis (which may itself be the basis for negotiation among various perspectives and interests) that takes account of inter-linked markets and structural and institutional factors affecting competitiveness.

Emerging from the situation analysis, negotiate the key issues and challenges to be addressed among a wide range of stakeholders, and understand the power and interests of each.

Be clear about your objectives, where you want to go, and what your collective vision is.

- ❑ Define guiding principles that will guide strategy development.
- ❑ Learn lessons from your (and others') previous experiences, interrogate these rigorously, move beyond rhetoric, build objectivity through joint learning, and refine your vision and guiding principles accordingly.
- ❑ Don't just outline one strategic option. Be more ambitious and think of a range of options that can be analyzed and debated among stakeholders (remembering that maybe more than one option will be appropriate, depending on your objective and the context), consider winners and losers. As part of the appraisal, make sure that a sound economic analysis is undertaken, but do not assume that public finances will (or need) be reduced—the concern is about good public investment, not necessarily less.
- ❑ Outline a roadmap, communicate it effectively and learn as you go, building in flexibility.

The case of **Denmark** describes the development of producer-owned and managed advisory services in a country that has never had a public extension service for the livestock sector. The story begins in the mid-eighteenth century when fundamental forces were driving new developments in livestock advisory services. The late eighteenth to early nineteenth centuries are described as times of significant social and political change (e.g., land reform, free primary education) that underpinned transformation of the agricultural sector. Natural and human capital formation was associated with a growth in social capital as farmers increasingly sought to learn together and organize themselves, this being supported by the introduction of government adult education programs. The tradition of exchanging sons and daughters among farmers is also highlighted as an important mechanism for transferring ideas and skills throughout Danish agriculture.

A downturn in the grain market around 1870 provided incentives for farmers to move into livestock production. Producer organizations eased this technological shift by developing co-operative services for

processing and marketing. They also promoted the interests of producers and became an important political force. The 1870s saw the first advisers being employed by the same producer organizations with half of their salary being paid for by government. The placement of government market analysts in export markets exemplifies effective government support for a producer-led sub-sector development strategy.

The success of Danish advisory services has a number of elements. The strategy was market-led and producer owned and managed, with the latter allowing greater trust and accountability, because of the clear separation between advisory and regulatory functions (much more difficult to achieve in public extension services). A drive by producers for increased professionalism and competitiveness drove the need for advice (the market pulling in advice), not vice-versa (advisory services pushing a market-orientation) as has often been the case in other strategy processes elsewhere. General education was also important as a precondition for the empowerment of producers and a driving force for enhancing their ability to organize.

A much more recent tale of developing advisory services comes from **Mozambique**, where public extension was only institutionalized in 1987 becoming operational after the end of the war in 1992. Extension became an important component of reconstruction work after the war, particularly in high-potential areas where it was focused (a form of triage operated by government, donors, and international NGOs). The late entry of Mozambique into the development of advisory services is seen as a blessing, leaving the country unencumbered by the establishment of a large, financial unsustainable bureaucracy as developed in other countries during the introduction of Training and Visit (T&V). This has allowed for more flexibility and learning-by-doing.

The enthusiasm of the international community to help rebuild Mozambique led to “a confusing and an uncoordinated array of donor initiatives” that prompted the government to prepare a National Program for Agricultural Development in 1995. An extension component was elaborated in an Extension Master Plan of 1997. Much of the analysis of this case is centered on the Extension Master Plan, which is regarded as broadly positive though with some significant weaknesses. For example, it was based on a very limited knowledge of the number and coverage of existing extension activities. Perhaps of greater concern was that the extension plan assumed that there were technologies “on the shelf” that just needed transferring (a common, sometimes flawed, assumption of extension planners), whereas a separate analysis showed that profitable technologies were lacking. Public-service human resources were also stretched. Many of the better staff were recruited by international NGOs who paid much more, with consequent impacts on morale and performance of staff left in the public sector.

The background for the development of the Master Plan was a focus on national rehabilitation with little attention given to issues of global competitiveness, seen now as a necessary focus for the future. Presently, reform is moving in the direction of greater outsourcing, though it is recognized that this will not be a cost-saving exercise, and public funds will be needed for many years to come if poorer farmers are not to be excluded. An extension learning center is an innovation proposed to support learning for extension service providers. Clearly, the current drive toward a market orientation presents a challenge to the identity of extension within the Master Plan in Mozambique. Is extension a social learning process where profitable technologies are secondary? Or, is it a business development service driving competitiveness where profitability is key? Defining the objective of extension is always the critical starting point for strategy development; and in Mozambique there are indications that consensus is yet to be reached.

Since 1990, successive governments in **Nicaragua** have sought to reverse the trend, pursued by the previous Sandinista government, of state intervention in the agricultural sector. However, government

withdrawal from the sector has not yet been underpinned by a clear strategy for input and output market development. This puts the sector at risk. Despite the development of a national strategy for agricultural technology development and transfer with cost-sharing experimentation for advisory services, the country ended the 1990s exhibiting poor advisory services performance, an incoherent research strategy, and a lack of connection between the public and private sectors.

In 2001, the government launched a long-term investment program designed to strengthen co-ordination, enhance private sector participation, build producer organizations and agri-business associations, and develop technologies. The use of competitive funds was introduced for contracting advisory services, thereby developing a market for advisory services (with the government as the primary client!). The body responsible for advisory services has changed from a service agency to a provider of services to other service agencies, charged with promoting pluralism. Indications are that the agency has improved vitality, though more can be done to make it more flexible, less costly, and more demand-oriented. Strategy development and reform processes have greater involvement of the range of stakeholders in input and output marketing chains. The case study notes that signs of improvement are encouraging, though the inclusion of poorer producers and more remote areas remains a challenge.

The importance of political support is emphasized by the experience in Nicaragua. Reform is regarded as being a gradual process, though some “rapid result” initiatives were incorporated for political expediency. Leadership groups from stakeholders across the sector helped in building ownership of reforms across a range of constituencies. Change is resisted in some quarters given that it will lead to changes in power relations; particularly among those organizations that are expected to be leaders in the process. The fact that half of the lessons from the Nicaragua experience relate to power relations highlights the importance of the political economy in which reform processes are embedded.

Reform processes in **Uruguay** trace back to 1990 and are seen as a patchwork quilt of various projects that had broadly coherent strategies. The main driving forces included the inefficiency of public extension services, fiscal tightening and conditions applied by donors. These projects that are taking strategy in a new direction have a number of elements in common. The projects each had their own focused objectives and target groups, unlike the public service, they looked to transfer costs gradually to farmers and enhance the use of private consultants. They promoted professionalization of farm production and a market-orientation, while enhancing producer participation, and some decentralization of decision-making. Monitoring quality of services was also an important component of various projects.

These Uruguayan projects have now been able to show quality improvements with more producers served, leading to an inclination among producers to pay for services. These projectized approaches were more flexible, more results-oriented, more efficient, and less hierarchical than the general public service. However, this has led to some overlapping services both public and private, which in the medium term constitutes an inefficient use of resources.

The economic condition of the sector was critical for the introduction of reforms. Farming was profitable and there was significant incentive to enhance productivity accordingly. However, the case study suggests that changes may not be sustainable because of the Uruguayan economic crisis. Groups that were formed are not being sustained, reinforcing once again the problems of forming groups according to an external rationale. Group formation based on the capture of a public subsidy is likely to result in a set of transient organizations compared to organizations formed on the basis of a market logic for collective action. This problem has been reinforced by insufficient farmer involvement and commitment during design.

A number of lessons can be learned from the Uruguay experience. The environment in which reform takes place is critical (natural, economic, and political). Public organizations resist change and are able to block what are presented as successful reforms on a political level. Reform requires change in the role of the public sector, which must be supported effectively to take up its new role. Redefining the objectives of extension brought about changes in the subject-matter content of extension with emphasis shifting to organizational and management issues. Service providers are often not properly geared up in this regard. Demand-side subsidy is regarded as an effective means for promoting the use and accountability of advisory services. However, poorer farmers may be excluded from the advisory market after project closure, though it is not clear if alternative low-cost options were considered during design. Furthermore, projects and their impacts die unless they drive sustainable institutional change--in the sense of the “rules of the game” and changes in power relations. The guidelines emerging from this experience highlight the importance of changing power relations, the politics of reform.

The Research-Extension-Producer Organizations Network (REPO-Net) is a learning platform for a wide range of stakeholders involved in national strategy and reform processes from across francophone **West Africa**. Lessons emerging from three annual learning workshops from 2000 to 2002 highlight the fact that change in extension systems is taking place within the context of increasing liberalization of trade, democratization, disengagement of the state, and decentralization, with new actors such as producer organizations, private sector, and local authorities taking on greater responsibility for basic agricultural services, including extension.

The drive for greater professionalization and specialization in agricultural production means that the T&V approach did not meet producers’ needs. Changes have led to extension being regarded more broadly, with upstream and downstream factors becoming of greater importance in the search for increased profitability. Facilitation and advice are valued more highly than simple technology transfer. There has been a trend toward greater demand-driven service provision. Yet many producer organizations have difficulty in analyzing their environment and defining best-option services. Is there a limit to demand-driven services given the blind spots that exist? Perhaps there is a role for a pragmatic joint definition of service needs.

In addition, putting greater responsibility on producer organizations requires a strategy for building their capacity for managing service provision, providing oversight of public institutions, and, where applicable, management of public funds and contracting. This case, as with others, highlights the importance of basic educational standards for effective organization of producers. There is a fundamental risk of state withdrawal in the absence of broad-based empowerment of producer organizations that are accountable to members.

An important aspect of producer participation is their involvement in financing extension. Producer participation in funding is regarded as being a necessary aspect of their right to accountability. An acceptable quality of service and involvement in oversight are necessary conditions for producers to be willing to pay for services. Yet sustainable funding is compromised by a failure in the finance market with producer credit constraints and poor financial services in rural areas.

Balanced reform requires development of private initiatives in the upstream and downstream links in commodity chains in which producers and their organizations participate. A limited market among service providers, limiting choice and quality, is regarded as a form of market failure that must be considered within strategy development and reform processes.

Sustainability, and particularly financial sustainability, is a key impetus behind extension reforms and in formulation of new extension strategies. Each of the cases, to some extent, involves some shift of financing responsibility to the private sector, NGOs, farmers, and farmer organization. Unfortunately, none of the case studies dealt with an alternative approach of employing new information and communications technologies (ICTs) to reduce costs and improve quality of extension information systems. A critical question for the systems “under construction” (i.e., Mozambique, Nicaragua, Uruguay) is the extent to which public sector funding can be sustained over time. This will require the development of an effective lobby for the extension services.

There is no magic bullet. Thus the importance of learning across countries and of maximizing endogenous reflection within countries—managing the political dimension of reform. The experience across these various case studies shows that there has been some convergence on principles, but each context is different. It seems that moving beyond prescription remains a design challenge for many government and donor-supported programs.

Note on Author

Andrew D. Kidd, Pro-poor Growth Team Leader, DFID, Nigeria (a-kidd@dfid.gov.uk)

Denmark: The Role of Livestock Advisory Service and Skills Development

Sanne Chipeta

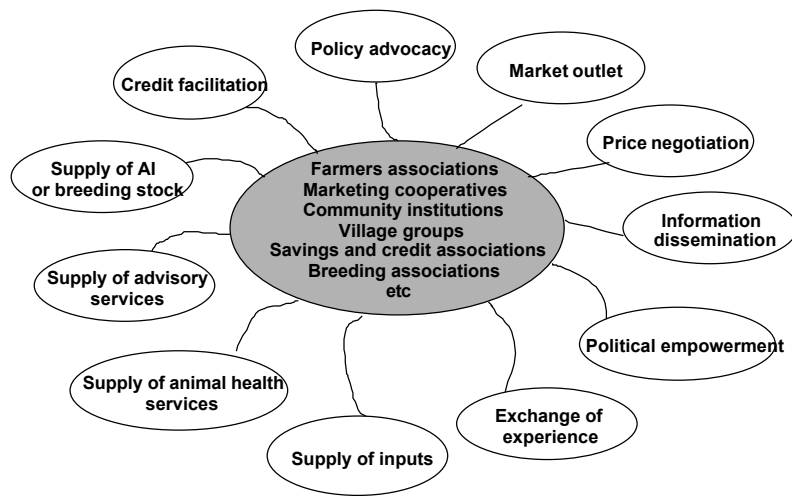
Information, knowledge, and skills development in all aspects of livestock production are major needs of poor farmers in developing countries. Information is needed on markets, fodder production and low-cost technologies. Development of skills in husbandry and management are needed. Experiences of many livestock programs show that introducing new technologies to poor farmers does not succeed, unless they have access to support services such as training and advice. These services have received very limited attention in the past. Agricultural extension services have focused almost solely on extending messages concerning crop production. Further work in this area must focus on developing new approaches to information and capacity-building for livestock producers combining this with new approaches to crop-oriented extension services. These new approaches need to put the producer in the driver’s seat in managing the services.

Global Initiative for Livestock Services and the Poor

This case study of Danish livestock development was undertaken to increase our knowledge on how livestock development can become the foundation for both general economic development and poverty reduction, and covers the period from 1750 to 1950. Although it is clearly not possible to compare the social, political and economic environment of developing countries today with Danish conditions over a 200-year period, this study provides insights into understanding fundamental principles in approaches to rural development that help farmers to fight their own way out of poverty.

Danish economic development was based on agriculture. Unfortunately, policy makers in developing countries frequently assume that a prerequisite for development is industrialization; agriculture is often seen as hampering modernization and enrichment of a society. This case study investigates how it was possible to develop a Danish economy that was able to eliminate rural and urban poverty, despite the fact that it for many years was almost totally based on agriculture. Rural poverty is no longer considered a problem in Denmark, and no special

Figure 5.1 The Multifaceted advantages of producer and community organizations



Source: Author

measures have been implemented since the 1950s. Rather rural poverty is addressed partly by general social programs and partly by general economic policy.

Several experiences confirm that small-scale producers can gain tremendously from organizing and working together to identify their needs and consolidate their demands. Producer organizations, which are truly owned and controlled by the producers themselves, have a potential to empower farmers and facilitate delivery of services that respond to their needs and fulfill required standards of quality. Figure 5.1 shows a sample of the multifaceted advantages that producer organization and community institutions can offer their members.

Historical Background

In 1780, landlords and the crown owned 90 percent of the land in Denmark. The Danish peasants lived in a feudal system on estates and were completely illiterate and ignorant about the world around them. Agricultural production was extremely poor due to unsustainable farming systems with depleted soils, starving and weak draft animals, and outdated equipment. The feudal system was abolished in 1788. This was followed by large land reforms whereby the freehold increased from 10 percent to about 65 percent of farms in 1815. Farming systems slowly changed to more sustainable cultivation methods with the introduction of the nitrogen fixing clover and potatoes into the crop rotation (see box 5.1).

The Act of General Education – the first of its kind in the world - was enforced in 1814. All children were to receive free primary education. Moreover, adult education was initiated with the start of the first Folk High School in 1844. It is where young farmers met and received general knowledge of history, culture, language, and art. These years were at the same time characterized by a tremendous rise in social capital in the farming communities. The farmers learned to debate and organize themselves. This resulted in insights that gave them possibilities to change their own lives. Some of the folk high schools also taught new farming technologies and young girls learned new home technologies such as processing milk.

Box 5.1 Overview of the Historic Background

1814	Act on General Education – world’s first act concerning schools – compulsory education
1818-1828	Crisis in agriculture
1830-1870	Period characterized by grain exports 1815-1870: Freehold increased from 2/3 to 9/10 1844: The folk high school movement
1870-1890	Switch over to animal production; Start of agricultural advisory service; Start of farmer-owned companies
1899-1919	Breaking up of manors into small holdings
1930s	Crisis in agriculture
1945-1972	Immigration from farming to urban industry – mechanization; Beginning merging of holdings; Beginning specialization

Source: Danish Agricultural Advisory Centre

The period from 1830 to 1870 was characterized by export of grain. However, grain prices decreased to a very low level and farmers started changing production from grain to animal production in the period from 1870 to 1890. This was a very big change, but the markets for animal produce were increasing and easily accessible. Danish farmers took this opportunity to build farmers’ organizations and develop co-operatives for processing and marketing. They organized input supply and financial services as well as farmers’ unions to advocate farmers’ interests in policy formulation.

Knowledge-based Development

A precondition for the successful transition to livestock production and for the growth of agricultural production was the close links between research, field experiments, and widespread dissemination of knowledge in the farming communities. The above-mentioned general education and the folk high schools, which from 1860 spread also to agricultural schools, provided a good foundation for the development of knowledge.

Other ways of spreading knowledge were through lectures and discussion meetings in the new farmers’ unions, agricultural journals, and articles in the widespread local newspapers. Informal exchanges of knowledge between farmers should not be underrated. One of the ways by which knowledge was exchanged was through the tradition of farmers’ sons and daughters serving as farmhands and servant girls on other farms for some years before taking over the parent’s farm or buying their own. This “exchange of sons and daughters” probably contributed significantly to the spread of new ideas among farmers in the country.

Box 5.2. The Act of the Advisory Service

1870s	Advisers in dairying
1880s	Advisers in animal husbandry
1900s	Advisers in crop husbandry
1910s	Advisers in farm accounting
1920s	Advisers in home economics
1940s	Advisers in buildings and machinery and advisers in youth work
Other specialties have been set up.	

Source: The Danish Agricultural Advisory Centre

The most important way of disseminating knowledge was through agricultural advisers, who got their basic knowledge from the Royal Veterinary and Agricultural University, and from practical work and experiments. The government chose very early to support development of advisory services, with the first advisers employed in the 1870s (see figure 5.2). They were advisers within the dairy industry and their tasks were to improve milk quality to a standard that could facilitate increased production of cheese for

export. Advisers were employed by farmers' associations, with half of their salaries paid by government. This model continued throughout all the years of development.

Along with the livestock advisers, the government also supported breeding associations. In the same decade, public consultants were hired, some of which were stationed abroad at the most important markets. The first went to London in 1888 and played a significant role in following market and political signals in the U.K. This meant that demands and complaints from the British market were immediately channeled into initiatives to adjust practices at dairies, slaughterhouses, and farmsteads in Denmark.

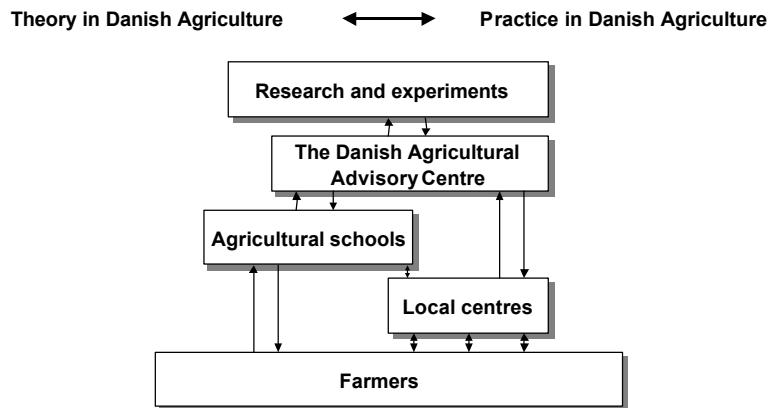
The fact that the farmers managed to organize the sector through their own associations, cooperatives and unions contributed to deep-rooted democratic and organizational learning processes. This built a self-confidence in the farming community and became a precondition for further development and for the strong influence that the farmers' unions and the sector in general have on policies today.

The Danish Model Today

The Danish model of advisory services has evolved over the years through the above-mentioned developments in the agricultural sector. Figure 5.2 depicts the creation and dissemination of new knowledge and technologies in the Danish model. The main principles of the Danish Agricultural Advisory Service are that it:

- ❑ is managed by the users and organized by agricultural organizations;
- ❑ is mainly user paid with a small support from government;
- ❑ is officially and universally recognized as impartial;
- ❑ has no inspection tasks on behalf of the Government;
- ❑ offers advisory services to all production branches; and
- ❑ is organized with two-levels of services.

Figure 5.2 The Danish Model



Source: The Danish Agricultural Advisory Centre

The Danish farmers have always found it very important that they receive unbiased advice. This has been a determining factor for the farmers to continue organizing their own advisory service instead of using consultancies from the private sector. In this connection, a further strong principle is that advisory services are never mixed with government control and inspection tasks. The advisory service supports producers' organizations with professional advice for influencing policies and at the same time functions as the farmers' link to authorities in order to help them adapt to government rules and regulations.

A good example of the latter is the role of the advisory service in implementations of environmental regulations, which in Denmark have been rather successful. The advisory service has no role in control and inspection, but delivers professionally qualified advice to the farmers' organizations. This advice is to

a large extent being used in planning and design of regulations. The advisory services have also been given the task by the farmers to develop recommendations and tools for them to comply with regulations and adapt production systems to be the most profitable possible.

Local advisory centers. At the local level, the Danish agricultural advisory service involves approximately 80 advisory centers organized and run by local farmers unions and associations. From these, advisers provide individual farmers and groups of farmers with the guidance and other services needed. A local center serves between 500 and 2,000 members and typically has 20 to 70 employees. A committee of three to five farmers is set up in the local center for each production sector. The committee defines the framework within which advisers operate and is also responsible for the departmental budget. Overall center management is the responsibility of a board of farmers elected by the local farmers' union.

The Danish Agricultural Advisory Centre. At the national level, the Danish Agricultural Advisory Centre (DAAC) cooperates with research institutions to translate research findings into practical recommendations and define relevant research activities. DAAC transfers the latest findings to the advisers in the local centers, who provide on-the-ground advice to farmers. However, there is considerable overlap between research and advisory services, as DAAC is involved in quite a lot of applied research as well. The agricultural schools (i.e., colleges and in-service training of advisers) are also incorporated in the system and draw on the services of DAAC. It is important to note, that all of these institutions are autonomous and operate independently. DAAC is a service organization for the local centers, but has no control over them.

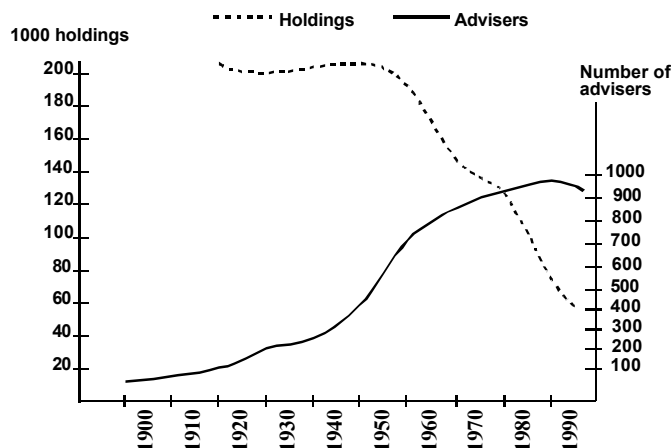
The service tasks. The advisory service as a whole employs approximately 3,200 people at the local and national level. There are 1,000 advisers, and the rest are agro-technicians and assistants. The main tasks of the advisory service are:

- ❑ supplying farmers with the best knowledge available;
- ❑ giving direct guidance in specific situations;
- ❑ recording and processing technical-economic data;
- ❑ recording and processing farm accounts for tax and farm management purposes;
- ❑ carrying out analyses, tests, and adjustments under farm conditions;
- ❑ arranging training project; and
- ❑ constituting an effective link between practical farmers and the research institutes and vice-versa.

Financing. Support from the government today constitutes less than 10 percent of the total budget for advisory services. The rest is financed by user payments and funds derived from production levies administered by agricultural organizations and used mainly for new development.

Recent developments. During recent years, the agricultural sector in Denmark has undergone strong structural adjustment. The numbers of farms is decreasing drastically and remaining farms are increasing in size. It will be interesting to see how this affects the development of the advisory services. As seen in figure 5.3, the numbers of advisers has continued increasing over the years with only a small drop recently. This indicates that the need for advisers follows production levels more closely than it does the total number of farmers. The role of the adviser changes as farms grow bigger, because farmers need more advanced management tools and good partners for discussion.

Figure 5.3 Trends in Number of Holdings and Advisers



Source: Government statistics

Lessons Learned

The conditions of markets, the global economy, and policy today are not necessarily comparable with conditions faced by Danish peasants and farmers during the historical phase of development of their advisory services. Still, there are principles from the Danish experiences that might be relevant to new approaches to extension in developing countries.

Facilitating role of the government. Agricultural development among small-scale farmers contributes substantially to overall economic development and is facilitated by government recognition that agricultural sector development is in the public interest. In Denmark this public interest paved the way for land reforms, parceling out small farms to landless laborers, and enacting government policies aiding production and market development without government interference with the sector's own choices for organization and investment strategies.

Self-organization by farmers. Self-organization by farmers was the basis for all developments initiated from the "bottom-up." This secured the interests of the primary production sector. As advisers are employed by farmers' organizations, the farming community has strong confidence in their advisers, who have become key partners in development and decision-making on farms, rather than simply being disseminators of information. The impartiality of the advisers to outside interests also secures farmers' confidence when adapting to changing policies, as was seen with the implementation of environmental regulations. Moreover, the self-organization has had the effect of building capacity, creating self-confidence and empowering the farming community in terms of gaining political influence in society. This has potential for contributing to elimination of the root causes of poverty.

Education and knowledge as preconditions and tools. General education and knowledge have played an extremely crucial role in the development of Danish agriculture. As the peasants and farmers gained knowledge, their capacity to organize themselves and increase production grew. General education, which provided nearly equal opportunity for all, was a precondition for poverty alleviation among small-scale farmers, who gained the ability to organize themselves for their own interests and gain the same benefits

as middle-class farmers. At the same time, the creation and dissemination of knowledge was the tool that paved the way for increased productivity.

Note on the Author

Sanne Chipeta, is an International Adviser at Danish Agricultural Advisory Centre.

Mozambique: Building African Models of Agricultural Extension

Carl K. Eicher

Although Mozambique became independent in 1975, public extension was only institutionalized as a separate Directorate within the Ministry of Agriculture in 1987.¹ However, because of the ongoing civil war, the National Directorate of Rural Extension (DNER) did not become operational until peace was declared in 1992. Hence, Mozambique has one of the newest public extension services in the world and herein lies some of its hidden advantages. Instead of being bogged down with 12,000 extension workers like Kenya or saddled with Zimbabwe's recently merged research and extension system, DNER is a relatively lean organization with a total of 639 public extension workers. The DNER has the freedom and resources to carry out pilot studies of outsourcing and experiment with the farmer field schools and other participatory types of farmer-to-farmer extension models. Currently the DNER is pursuing a learning-by-doing approach to building Mozambican models of agricultural extension.

In 1997 the Directorate of Rural Extension prepared an Extension Master Plan (DNER 1997) that was subsequently incorporated into a sector investment program, Agricultural Sector Public Expenditure Program (PROAGRI) (PROAGRI 1998). Prior to this, donors in Mozambique had financed 42 separate agricultural sector projects totaling US\$ 43 million (World Bank 1999). Currently, there are 18 cooperating partners and 10 participating partners (donors) contributing funds to a Common Flow of Funds Mechanism to finance eight components of PROAGRI, including extension (PROAGRI 2002). The participating partners (donors) have agreed to finance about US\$33 million of PROAGRI's 2003 budget of US\$40 million. PROAGRI is a shining example of an innovative sectoral approach to the coordination and financing of institution building.

Evolution of Agricultural Extension

T. W. Schultz, Nobel Laureate in Economics, once quipped that smallholder farmers can "turn sand into gold" if they have access to land, public and private agricultural services, favorable economic incentives, and markets. One of the critical "ifs" is the presence of an effective and fiscally sustainable extension system. In Mozambique the main target group for extension providers is smallholders, roughly 3 million

¹For background on agricultural extension in Mozambique see DNER 1997; Gemo 2000, 2002; Gemo and Rivera 2002; Van Crowder 2001; World Bank 2001.

farms with an average size of 1.1 hectares per farm. The family sector occupies a total farming area of about 3.5 million hectares.

Mozambique's 15-year history of public extension can be divided into four phases. The first phase from 1987-92 can be described as a "tepid launch" of public extension under civil war conditions. DNER adopted the Training and Visit (T&V) extension model in 1988; and modified it in 1992 in light of shortcomings uncovered under local conditions. Peace was declared in 1992 and ushered in a second phase of development for the national extension system from 1992 to 1997. During this period of rehabilitation, extension workers helped refugees return to their villages, resume farming, and rebuild livestock herds.

The third phase of extension development was the PROAGRI phase covering the period 1998-2003. In 1995 the Ministry of Agriculture prepared PROAGRI (The National Program for Agricultural Development) in response to the problem of Ministry programs being supported by "a confusing and an uncoordinated array of donor initiatives" (World Bank 1999). The agricultural extension component of PROAGRI was based on the Extension Master Plan (DNER 1997). A fourth phase of the evolution of extension is the outsourcing stage that was intensified starting in 2002. Over the past 15 years DNER has adopted a learning-by-doing philosophy to find answers to three questions:

- ❑ How to nurture and develop an array of public and private extension providers.
- ❑ How to empower farmers and farmer organizations to enable them to inject strong doses of local knowledge into priority setting and farmers' voice in the hiring and firing of local extension workers?
- ❑ How can extension be financed over time?

Implementation of The Extension Master Plan: 1998-2002

The goal of the Extension Master Plan is to develop a pluralistic extension service with public, NGO, and private service providers guided by strong demand pressures from empowered farmers and producer organizations. The Plan states that the public sector will require a "minimum core competency" to disseminate "public good" technology to the family sector, develop human resources for the overall system, and coordinate and disseminate successful experiences among extension providers. However, Mozambique's public extension service has only 639 agents and supervisors located in 55 of the 128 districts in the country. Extension services from NGOs (local and international) and private firms (principally cotton and cashew) are relatively important.

The DNER, like India's public extension services in the 1960s, has made a wise decision to concentrate its frontline extension workers in the 55 highest potential agricultural districts of the country's 128 total districts. Unfortunately, the 1997 Extension Master Plan did not include an inventory of public, NGO, and private extension workers by district and province, and the DNER still lacks this information, which would be useful in preparing the 2003 – 2008 Master Plan. There are substantial extension resources deployed in the country. For example, World Vision International (WVI) has 300 agricultural extension staff members in Mozambique and CARE has 72 extension workers in Nampula province and another 13 in Inhambane province. (Wentling 2002) Nampula province, a high-potential area, currently has a total of 238 extension workers—126 from DNER, 72 from CARE, and 40 from WVI.

The Extension Master Plan is also vague on the total number of public, NGO, and private extension workers that will be needed in the future. The Master Plan calls for maintaining 700 public extensionists from 1998 to 2003, presumably because there are "a satisfactory number of extensionists at the district

level with specific training and professional experience in extension” (DNER 1997:12). However, the Master Plan notes that at the end of five years (2003), the extension service will only be serving about 25 percent of the country’s three million farm families. What about the other 2.25 million farmers who will not be served by extension in 2003? The Master Plan does not justify why “the permanent human resources of the public extension service should be limited to a critical core of around 200 civil servants” (DNER 1997:5).

The Master Plan is ambiguous on whether profitable technology is available to smallholders. The Plan reports that technology is on the shelf and the problem is only one of “deriving appropriate technical messages.” The Plan states, “there is a backlog of technological options and experience (either from other farmers, the research system or extension activities in the other parts of the country) that can be taken advantage of” (DNER 1997:12-13). However, a number of recent studies decry the lack of technology on the shelf for smallholders (Danida 2002, 2002a; DNER 2002,). In our May 2002 field visits to six districts, we found there was a lack of cost of production studies of present and improved technology for the family sector and a general lack of connectivity between research stations and extension programs. A number of research stations were inactive because of disbursement delays, lack of qualified staff and inadequate computer and support services. Mozambique’s public agricultural research system is being reorganized, and it may take another decade before it has the capacity to deliver a steady stream of profitable technologies to extension providers and farmers.

International NGOs are undermining the human capital base of public extension (DNER) by offering salaries and benefits to extension workers that are at least double or triple those offered by DNER. The loss of public extension agents to the NGOs is a serious problem that is affecting the morale, turnover, and performance of the DNER.

When the Extension Master Plan was prepared in 1997, there was understandably little debate on global issues and the need for agriculture in developing countries to become globally competitive. There is an urgent need to develop a new cadre of research officers with knowledge and expertise in biotechnology, bio-safety, supply chain management, trade, marketing, and agribusiness. The family sector also needs increased extension assistance in helping farmers generate new income streams from value-added commodities, processing, marketing and enhanced global competitiveness. Therefore, DNER should develop a plan to recruit a small cadre of subject matter specialists in extension marketing during the second phase of PROAGRI and the Extension Master Plan from 2003 to 2008.

Overall the Extension Master Plan seems to be sound and on target after four years of implementation. However, there are some internal and system-wide problems constraining the performance of DNER. Future performance of DNER is critically dependent on correcting the incentive structure for extensionists, developing profitable technology for smallholders, and increasing demand pressure from clientele groups to exercise a voice in setting extension and research priorities, and improving the connectivity between extension and research. Crafting Mozambican models of extension is basically an accretionary institution building process that unfolds slowly and almost invisibly over time. There have been important achievements over the first four years of the Extension Master Plan, but DNER still faces some significant internal issues, including the elaboration and implementation of its policy on outsourcing services.

Strengthening DNER: Internal Problems

Over the past decade proponents of structural adjustment programs have exerted persistent pressure on African governments to reduce public sector employment and move to a market economy (Eicher 1999). This general prescription has also been used to justify the reduction in the size and public expenditures of many national research and extension services. However, Africa is a complex continent of 48 countries at different stages of economic history and institutional development. The T&V extension model was promoted as a general prescription for Africa starting in the 1980s, but after two decades turned out to be financially unsustainable. In order to avoid another such generalized failure, it is critical that policymakers examine the general prescription to downsize public extension and research throughout Africa. Many academics and donor specialists have endorsed the general prescription of a new extension paradigm that embraces decentralization, participation, outsourcing (contracting) and cost recovery with the goal of reducing the size of the government bureaucracy and public outlays on extension. Despite the appeal of this general prescription, it does not follow that this should become the specific prescription for Mozambique.

Mozambique is a special case. A country at peace for only a decade, it is a country with one of the youngest and smallest public extension services in Africa. Moreover, Mozambique has a surprisingly small stock of human capital in both research and extension. Several comparisons of the stock of human capital add a sense of reality to this view. Mozambique's National Institute for Agricultural Research (INIA) has 66 scientists as compared with 65 in the National Agricultural Research System (NARS) of Botswana, a nation of 2 million. Mozambique currently has 639 extension workers in DNER, down from 700 in 1997.

A number of internal issues and problems will need to be addressed by DNER during the preparation of the extension plan for 2003 to 2008. DNER should compile an Extension Density Map that records the total number of (DNER, NGO, and private) extensionists in each of the 128 districts in Mozambique. This information will be invaluable in determining the districts where the DNER/NGO/private mix should be changed. This information should then be complemented by commissioning impact studies to determine the costs, benefits, and impacts of public extension services in Mozambique.

On the operational side of the DNER program, there is a need to address the unacceptable housing and transport conditions for frontline extension workers. Concerted efforts are needed to build Mozambican models of extension. Such models are likely to include: accelerated devolution of extension programming to the district level; increased connectivity between DNER, INIA's research stations, NGOs, the private sector, and farmer organizations; and development of technical capacity in value-added commodities and processing.

Extension Learning Center (ELC)

It would be useful for DNER to set-up a small Extension Learning Center (ELC) to improve DNER's capacity to learn how to develop a unified and pluralistic extension system over the coming 10 to 15 years. The need for an ELC is based on the lack of guidelines for building Mozambican models of extension with three service providers -- public, private, and NGOs. An ELC could assist DNER staff and others prepare literature reviews for special studies, such as outsourcing and extension density maps. It could also cooperate with other agencies, such as DAP and INIA, in studying the impact of new extension approaches, such as the Farmers Field Schools (FFS) approach.

An alternative to developing an ELC for extension would be developing and operating a joint Extension and Research Learning Center (ERLC), which could be launched at the provincial level rather than as a national center in Maputo. This approach is appealing because it promotes bottom-up learning on how decentralization and research and extension cooperation is evolving at the provincial and district levels; and it increases the connectivity between research and extension.

Reflections on Outsourcing and Cost Recovery: The Next 15 Years

Historically many countries have pursued outsourcing under various approaches of gradual privatization (in the Netherlands), partial cost recovery (in England) and commodity extension programs (Dairy Board in New Zealand) (Rivera and Cary 1997).² In Mozambique, outsourcing has been pursued on an ad hoc basis for more than a decade through a “patchwork of donor-funded projects”. During the rehabilitation phase of extension from 1992 to 1997, numerous international and local NGOs provided extension services to farmers (Crowder 2001). During the mid 1990s, under the World Bank’s Agricultural Services Rehabilitation Project, private Joint Venture Companies were paid to provide extension services to the family sector. A Joint Venture Company working in a cotton zone was selected by DNER to deliver extension services to the family sector but the joint venture’s financial terms were unacceptable and the program failed. Crowder (2001) reported that the chosen joint venture company “felt entitled to incentives or subsidies from the government” which were “60 percent more costly” than the comparable public-sector extension services. A large number of NGOs are currently delivering extension services to the family sector on contracts (outsourcing) financed by donors. For example, World Vision International has 300 total staff and CARE has 85 extension workers in Mozambique.

The DNER manual defines outsourcing as the act of public sector extension arranging for the private sector (whether private companies, NGOs, farmer associations, or registered individual extension consultants) to assume responsibility for providing extension services in part or in full (DNER 2001). Mozambique’s outsourcing is considered an experiment in building Mozambican models of agricultural extension.

The Extension Master Plan asserts that outsourcing can reduce the amount of government resources allocated to extension and the number of publicly financed extension workers “in the long” run as the private sector and civil society take on an increasing role in promoting new production and post-production options (DNER 1997 p. 33). How long is the long run? Chile’s outsourcing experience is relevant because after 22 years of vigorous experimentation with various outreach models, only 52,000 small-scale farms are participating in its outsourcing schemes (Berdegué and Marchant 2002). If it has taken Chile 22 years (1978-2000) to “scale up” to serve 52,000 farmers, how long will it take for Mozambique to scale up to serve 1,000,000 farmers (1/3 of the present 3 million family farms in Mozambique)? Fifteen years may be an appropriate time frame to expect some appreciable success in the outsourcing of extension in Mozambique, recognizing that crafting an indigenous extension model is a pragmatic, exploratory, and social learning process that unfolds over years and decades. Pilot studies are a fundamental part of the learning process.

DNER has developed a manual (DNER 2001) and terms of reference for outsourcing extension (DNER 2001a). In October 2002, DNER announced that a consortium of CARE and three other organizations

²See the landmark book of case studies on outsourcing extension (Rivera and Zijp, eds, *Contracting for Agricultural Extension*, 2002).

(CLUSA, OLIPA (a Mozambican NGO), and Agro-Alpha (a private input supplier) had been chosen to carry out a three-year study of outsourcing in Nampula province. The estimated cost for this study is one million U.S dollars. The DNER planned to sign another contract in late 2002 with a firm to carry out a similar three-year outsourcing study in Nicoalala district of Zambezia province. Similar three-year studies are planned for Niassa and Gaza provinces in 2003. Studies will involve selecting a group of farmers to be studied, with some served by the outsourcing contractor and a “matching group” of other farmers served by DNER extension workers. There are four concerns with the scope of the work laid out by the DNER manual and terms of reference for these outsourcing studies (DNER 2001, 2001a):

First, the scope of the studies is too broad. The terms of reference report that in addition to the four main goals, “the contractor will explore how best to address other related areas in the district such as gender mainstreaming, natural resource management and rural youth development, as well as problems related to infrastructure availability and affordability of input supplies, markets and transportation” (DNER, 2001a:3).

Second, the quantity of data collected may overwhelm the contractor. For example the DNER manual calls for the contractor “to institute regular reporting, maintenance of records on farmers and farming systems in the District, and general record keeping on rural agricultural development needs, such as, social services, input supplies, agricultural credit, commodity markets and infrastructure” (DNER 2001:5).

Third, some of the indicators of outsourcing success are vague and there is certain to be difficulties in collecting appropriate data to measure success or failure over time. Targets that will be hard to measure include: development of a “viable” extension service, establishing “well functioning” markets, making local extension committees “viable”, and achieving project “sustainability” (DNER 2001a) /

Fourth, comparisons may not be valid for costs of providing DNER services in one district or part of a district with the costs of a contractor providing services in another part of the same district or a control district.

The cost for outsourcing in one district in Nampula province is around US\$1 million dollars over the next three years, yet there are 128 districts in Mozambique. The bottom line is how does one estimate the long run fiscal sustainability of extension services when donors are currently paying the total cost of outsourcing? An Extension Learning Center should be charged with documenting the process of developing, implementing, monitoring, and evaluating the current three-year DNER outsourcing experiments in Nampula and Zambezia provinces so that the lessons can be fed into design of future experiments in the two follow-up provinces, Niassa and Gaza.

The European Commission through its Food Security Unit in Maputo recently launched outsourcing experiments in crop diversification and private investment in cotton and cashew areas provide improved support services to farming households. The six outsourcing operations launched in northern Mozambique and one in the south will need to be monitored carefully. Four propositions emerge from these outsourcing experiments and need to be considered by DNER and MADER.

The stage of a nation’s institutional development and the degree of farmer participation in the market economy are critical factors in determining the scope for building and financing a competitive group of extension service providers. Building an array of nonpublic local extension service providers is an important, complex, and difficult task and the academic literature is limited on this topic. CLUSA’s work on building “income generating” farmer support groups is promising and it should be carefully studied by DNER.

It is difficult to finance extension services in subsistence and semi-subsistence economies that do not have agricultural exports to tax. Decentralization of extension to the district level has the potential to raise taxable capacity by helping farmers see what they are getting for their taxes. If local extension workers help farmers generate new income streams (e.g., paprika) that can be taxed as exports, some of the tax revenue can be used by local governments to cost-share extension. The higher incomes accruing to participating farmers can help a producer association pay for part or all the cost of extension services. In subsistence and semi subsistence economies, there is a limited income base for farmers to “buy their way out of poverty” (i.e., by paying directly or indirectly for extension assistance). The difference in the degree of commercialization of agriculture in China and Mozambique is striking. In China, 80 to 90 percent of the farmers purchase commercial fertilizer compared with 2.7 percent in Mozambique.

International NGOs represent a proven model for delivery of extension services in Mozambique. However, some of this success is attributed to a generous flow of foreign aid, hiring the best local people and working in circumscribed high-potential project areas. However, the international NGOs that depend on foreign aid for the bulk of their financing are unlikely to be financially sustainable over the long run. One can make a case for donors to agree on gradually shifting their financial support from international to local NGOs and increase their contribution to DNER over a ten- to fifteen-year transition period.

Global experience suggests that it has been more difficult for extension reforms to reduce the total public expenditure on extension than to develop a pluralistic system of extension providers. In Chile, a middle-income country, public expenditures on extension are still 85 to 90 percent of the total extension budget after 22 years of experimentation. Therefore, Mozambique’s Ministry of Agriculture and Rural Development and the Ministry of Finance should assume that even if an array of NGO and private extension service providers emerge over time, the Government of Mozambique will more than likely be the main financier of extension for decades to come.

Outsourcing is premature in African countries with limited market participation, weak institutions, poor roads and limited private sector involvement in input delivery and marketing. Experience to date suggests that Mozambique has made a wise decision to adopt a “gradual approach” (PROAGRI 2000) to outsourcing. Without question the outsourcing experiments now underway by DNER and the European Commission are valuable “learning by doing” exercises.

The Future of Public Extension

This Mozambique case study argues that policymakers and donors should shift the debate from the general prescription on downsizing and privatizing public extension to the special case of building a Mozambican model of agricultural extension. Unlike many Anglophone and Francophone African countries that inherited large extension systems at independence, Mozambique was a latecomer in gaining independence (1975), and a latecomer in institutionalizing a public extension system in 1987. Thus, Mozambique represents a special case in institution building because its public extension service is in its infancy relative to the needs of its 3 million family households. The basic question for policymakers is how to build a Mozambican extension model that is pluralistic and fiscally sustainable.

The challenge is daunting. The incentive structure for frontline public extension workers is unacceptably low, the job insecurity of extensionists on temporary contracts is debilitating, and there is a dearth of profitable technology coming from Mozambique’s embryonic agricultural research system which has only 66 scientists. It appears that public agricultural extension in Mozambique is being kept “on hold.” The 218 permanent civil service posts included in the 1997 Extension Master Plan have not been filled;

perhaps because of the general prescription to cut public expenditures on national research and extension services in Africa. The Extension Master Plan adheres to this line and assumes that over time the private sector will replace public extensionists and total government expenditures on extension will be reduced. However, Brazil did not concentrate on downsizing its core agricultural institutions some 40 years ago when it began its march to building a strong human capital base and a globally competitive agricultural science base. Instead, Brazil mobilized high-level political support to increase its investments in agricultural research and extension. We think that Ministry of Agriculture and Rural Development (MADER) should step back and examine whether an increase in budget is needed for public research and extension.

The new extension paradigm of decentralization, participation, outsourcing, and cost-sharing is appealing and seductive. Public and private investments are needed to achieve goals of decentralization and agricultural growth, and the mix of public and private extension will vary over time. However, even if non-government extension providers can be developed, the public treasury will likely have to pay a large share of the extension bill for decades to come. The challenge for the next 10-15 years is to focus on strengthening and gradually expanding the size of DNER (public extension), which is the cornerstone of Mozambique's pluralistic extension system. NGOs and private farms can supplement but not replace the vital role of public extension at this early stage of Mozambique's institutional development. Poor and semi-subsistence farmers in Mozambique will have a hard time "buying their way out of poverty" by paying for extension services. Public investment in agricultural research and extension is needed to produce public goods such as information and knowledge for free distribution to all people with special emphasis on the poor.

References

- Berdegú, J. A., and C. Marchant. 2002.; Chile: "The Evolution of the Agricultural Advisory Service for Small Farmers: 1978-2000." In W. M. Rivera and W. Zijp (eds.), *Contracting for Agricultural Extension: International Case Studies and Emerging Practices* (pp. 21-17). New York: CABI Publishing.
- Crowder, L. V. 2001. "Contracting for Extension Services: Contrasting Approaches from Mozambique." In F. L. Brewer (ed.), *Agricultural Extension Systems: An International Perspective* (pp. 112-124). North Chelmsford, MA: Erudition Books.
- Danida. 2002. *Review of Danida – Supported Extension and Research Activities within the Agricultural Sector Programme Support (ASPS): Mozambique*. Copenhagen, Denmark: Danida.
- Danida. 2002a. *Promotion, Development and Implementation of the IPM Approach within the Agricultural Sector in Mozambique.* Technical Backstopping Mission. Copenhagen, Denmark: Danida.
- DNER. 1997. *Extension Master Plan*. Maputo: National Directorate of Rural Extension, Ministry of Agriculture and Fisheries.
- DNER. 2001. *Manual for Outsourcing Extension in Mozambique*. Maputo: DNER, MADER.
- DNER. 2001a. *Terms of Reference: Outsourcing Extension Services*. District of Murrupula, Nampula Province. Maputo: DNER MADER.
- Eicher, C. K. 1999. *Institutions and the African Farmer*. Mexico: D.F.: CIMMYT. Reprinted in *Issues in Agriculture*, no.14. September, 1999. Washington DC.: CGIAR Secretariat.
- Gemo, H. 2000. "Sobre a Campanha Agrícola 2000/2001." *Extensao Rural Mocambique* 1(3):2-3.

- Gemo, H. 2002. *Terms of Reference: Review of Implementation of Extension Master Plan and Proposal for Future Improvement Measures*. Maputo: DNER.
- Gemo, H., and W. M. Rivera. 2002. "Mozambique: Dual Public-Private Services for Small Farmers." In W. M. Rivera and W. Zijp (eds.), *Contracting for Agricultural Extension: International Case Studies and Emerging Practices* (pp. 149-154). New York: CABI Publishing.
- Rivera, W. M., and J. W. Cary. 1997. "Privatizing Agricultural Extension." In B. E. Swanson, R. P. Bentz, and A. J. Sofranko (eds.), *Improving Agricultural Extension: A Reference Manual* (pp. 203-211). Rome: FAO.
- Rivera, W. M., and W. Zijp (eds.). 2002. *Contracting for Agricultural Extension: International Case Studies and Emerging Practices*. New York: CABI Publishing.
- Rivera, W. M., with input from M. K. Qamar and L. Van Crowder. 2001. *Agricultural and Rural Extension Worldwide: Options for Institutional Reform in the Developing Countries*. Rome: FAO.
- Swanson, B. E., R. P. Bentz, and A. J. Sofranko. (eds.). 1997. *Improving Agricultural Extension: A Reference Manual*. (Third edition). Rome: FAO.

Note on the Author

Carl K. Eicher is a University Distinguished Professor Emeritus, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan. He recently served as a consultant to the National Directorate of Rural Extension, Ministry of Agriculture and Rural Development, Maputo, Mozambique. Email: ceicher@msu.edu

Nicaragua: The Agricultural Technology Project

Norman Piccioni and Fabio M. Santucci

The Nicaraguan agricultural and livestock sector experienced wide policy shifts over the past two decades. The reversal of the state intervention in the agricultural sector characterizing the Sandinista period (1979-1990) was a key tenet of subsequent governments. This included a drastic reduction in credit, liberalization of input prices, curtailment of government technical assistance services, and liberalization of foreign and domestic input and output markets. However, government withdrawal was not simultaneously accompanied by the promotion of institutions that would facilitate competition in input and output markets or provide credit and technical assistance.

In 1993, with assistance from the World Bank, the Government articulated a comprehensive strategy that was implemented in part through the Agricultural Technology and Land Management Project (ATLMP). This included the creation of a Nicaraguan Institute of Agricultural Technology (INTA), as the major provider of advisory services to farmers. This also led to simultaneous experimentation with cost-sharing strategies for financing extension services (Dinar and Keynan 2001, Dinar and Keynan 2000, Keynan Olin and Dinar, 2001). At the end of the 1990s, the situation was as follows (World Bank 2000):

- ❑ **Low coverage of extension services:** Less than 15 percent of farm households made use of advisory services, and only half of these services were provided by the government;

- ❑ **Incoherent research agenda:** Many different activities funded by the government and donors were pushing the technological agenda in different directions without a shared strategic vision;
- ❑ **Shallow penetration of information:** The country lacked an effective technological information system to map and evaluate channels for agricultural knowledge flows, and integrate existing useful knowledge to meet the information needs of farmers, extension agents, researchers and government agencies;
- ❑ **Disconnection between public and private sector:** Scientists conducting agricultural research, or providing extension and training services in several universities, INTA, the National Institute for Technical Training (INATEC), and NGOs were, to a large extent, working in isolation with no effective linkages among them;
- ❑ **Low technical education:** High levels of illiteracy in poor farm households (32 percent in agricultural areas and 40 percent in the poorest areas in 1993) and limited schooling of young people (62 percent of 15-39 year-olds had attended only three years of school) were leading causes of the slow implementation of product and process innovations, thus perpetuating the rural and urban divide.

Another set of problems is posed by the fact that the number of farm families has almost doubled since the last census made in 1963, while the cultivated land area has increased by only 63 percent (Arguello 2002). Peasant holdings are becoming smaller and smaller, and the agricultural frontier is moving on, reducing forest coverage and leading to dramatic environmental problems.

Key Policy and Institutional Reforms

In 2001 the government launched a long-term investment in a four-phase agricultural technology program. The program aims to integrate public and private research, extension, education, and training into a cohesive, integrated agricultural knowledge system. The first phase of the program is now in its eighteenth month of implementation and is providing long-term support for policy and institutional reforms (World Bank 2000). Key reforms are:

- ❑ strengthening of an integrated institutional framework to coordinate, facilitate, and promote systematic, synergetic inter-relations among multiple public and private actors, in agricultural research, technical assistance, education, and training;
- ❑ redefinition of the state role in the provision of public agricultural research and technical assistance services, gradually transferring direct execution responsibility to the private sector and leading to the empowerment of farmers and farmers' organizations;
- ❑ establishment in a modernized Ministry of Agriculture (MAG-FOR) of a Directorate of Agricultural Technology responsible for policy, regulation, financing, and monitoring of a pluralistic agricultural technology and training system;
- ❑ definition of the responsibilities, role, activities, and financing of INTA and INATEC;
- ❑ expansion of private sector participation through technology development programs co-financed with the private sector;
- ❑ strengthening of producer organizations and agribusiness associations with increased awareness of and access to profitable, environmentally friendly technology options; and
- ❑ contracting of services through a competitive fund.

The following components are supported by the project:

Development of institutional capacity. The main public institutions related to agricultural technology are being strengthened. A Directorate of Agricultural Technology (DTA) created within MAG-FOR is designing and implementing agricultural technology and training policies and is coordinating and monitoring publicly funded agricultural research, technical assistance technical education, and training activities. At the same time, the *Fundación Nicaragüense de Tecnología Agropecuaria* (FUNICA), a private body accountable to a Board of Directors that brings together public and private stakeholders, serves as a permanent forum for assessing technology options. FUNICA manages a competitive fund facility with two windows. A first window (FAITAN) finances agricultural research projects presented by research organizations and institutions, domestic and foreign; a second window (FAT) aims at stimulating competitive, private agricultural advisory services.

Support to the Nicaraguan Institute of Agricultural Technology (INTA). With a total staff of about 600 persons, INTA is at present the main institution responsible for generation and diffusion of innovation in the agricultural sector. INTA is being supported to improve its capacity for better use of public resources and to ensure the general availability, diffusion and quality of agricultural knowledge and services. INTA is gradually withdrawing from its traditional role as direct field provider of advisory services, while strengthening a new, higher level role as main provider of: (a) strategic and adaptive research; (b) technical assistance that generate positive externalities; (c) agricultural technology and knowledge captured from foreign sources; (d) basic seed; and (e) second-tier services to other agricultural service providers.

Development of an agricultural technical education and training system. The current program supports: (a) in-service training for technical assistance and education staff provided by specialists from the private (i.e., universities, NGOs, agro-industrial companies) and public sectors; (b) education and training of future agricultural trainers, for basic and intermediary levels; (c) pilot initiatives for the alleviation of agricultural illiteracy and assist agricultural youth and unemployed adults to work as farmers or as skilled or semi-skilled farm workers, and (d) in-service training for agricultural public sector management, administrative and technical staff.

Development of an agricultural information system. An agricultural technology information system is being piloted to bring together several independent sources of information available nationally and internationally. The system should provide relevant and timely information on market trends and opportunities, agro-meteorology, agricultural services, business opportunities and best practices for (a) agricultural researchers, technical staff, subject matter specialists and trainers at all levels, in order to improve the quality of their professional services; (b) farmers, directly or through development agents, enhancing their decision-making ability; and (c) policy decision-makers, program design, and monitoring units.

Impact of Reforms

FUNICA established in 2000 is now fully operational. The first call for research proposals financed five research projects out of 55 proposals, and a second call is being prepared with a new, fast-track procedure to finance research projects within six months. A separate facility for validation of existing technologies has recently started receiving proposals. Under this scheme, eligible amounts are smaller (mini) and are approved within 30 days. Currently under study is a third initiative would provide mini-grants to less favored areas of the country. A pilot program is financing proposals for technical assistance for groups of

farmers in these less favored areas. FUNICA recently signed its first contracts under this facility, providing assistance to about 30 groups of producers (about one-third of whom are women) for technical assistance to be provided by freelance agronomists or by NGOs.

INTA shows signs of renewed vitality, with a long list of already validated innovations, more training activities for its staff, and more publications for staff and producers. Yet, it still needs to reorganize its internal structure and become more flexible, less costly, and more demand-oriented. At present, INTA provides co-financed technical support to 11,343 families (under the ATP-1 program); free information services through mass media and mass contacts to another 16,577 families (under the ATP-m program); and co-financed technical support from private suppliers and NGOs contracted by INTA to an additional 13,412 families (under the ATP-2 program). The number of families served comes to 41,332, or about 20 percent of all farm families counted by the 2001 Agricultural Census.³

INATEC is also running to keep up with other institutions, but has not yet launched its new curricula. NGOs and Farmers Unions of all political affiliations have been involved in the process of revising the curricula, not only as sources of insights and information on the sector, but also as members of decision-making and advisory boards. Private input suppliers, output traders, and food processors are now being contacted to strengthen their existing networks and attract private resources into the system.

The Agricultural Information System Component of the ATLMP project has created a portal and a website with a wealth of information about various partners in the agricultural knowledge system with links to other websites, such as MAG-FOR and INTA. However, there is some controversy over the value of this effort, as most agricultural information is still transmitted orally from advisers to farmers and from farmer to farmer (Agrodiversos 2000).

An articulated and detailed system of monitoring and evaluation has been devised, for the different components of the project and for the many stakeholders. This includes 10 groups of variables and a total of 136 indicators (DSE/MAG-FOR - NITAPLAN - UCA, 2002). Furthermore, a baseline survey of opinions of producers, technicians, and the general public is being monitored through periodic polls (*agrobarometro*), providing invaluable feedback to the system operators.

While it is too early to draw any meaningful conclusions about the impact of reforms, there are early, encouraging signs of a strong commitment in the form of (a) financial and human resources being made available by several donors and (b) a willingness to change and personal engagement of many Nicaraguan individuals within MAG-FOR, FUNICA, INTA, and other institutions.

Sustainability and Replicability

Reforms carry three direct risks affecting sustainability.⁴ These vary in severity: (a) *financial sustainability* is a major issue for agricultural technology systems throughout the world. The program has incorporated strategies to address this risk and enhance financial sustainability of the project, but it certainly will continue to depend heavily on donor assistance in the short to medium terms; (b) *institutional sustainability* is a moderate risk due to the participation of a large number of institutions and

³Arguello (2002 mimeo) notes that the Agricultural Census found that only 12 percent of all families were receiving advisory services and that there were other providers besides INTA. This discrepancy should be better investigated.

⁴What do we mean by sustainable? Could USDA or the Land Grant Colleges or the US Cooperative Extension Service survive without public funds from the federal government and from state governments?

the need for these to relate in new ways,(i.e., public-private partnerships for research and technical assistance); and (c) *environmental sustainability* presents a minor risk, even though it is expected that program activities will improve knowledge and diffusion of environmentally friendly technologies.

Of these three, the first deserves a more pragmatic approach in terms of the program cost-effectiveness. In order to make the Nicaraguan system efficient (and more socially just for the different strata of producers), a distinction must be drawn between provision of technical assistance and education as private goods; and those functions when providing public goods needed to meet demands of the society and of the majority of peasants, who are still not being properly served (Christoplos 2001). At present, this distinction is not clear and the system is only beginning to introduce elements of accountability, transparency, cost-effectiveness, and cost sharing.⁵ After more private operators enter into the market and diffuse validated information, the public role in the production and delivery of private goods from seeds to information becomes less important. Resources can then be diverted into research and information as public goods, or as public support for very marginal groups of peasants where even NGOs do not enter.

It is obvious that neither peasants nor landlords can continue to exploit natural resources of Nicaragua in the traditional ways and that innovations are needed for improving agriculture's overall performance. It is also evident that more private investment is needed in input supply and in post-harvest processing. Information as a private good could flow to producers from both sides allowing government, INTA, FUNICA, and INATEC either to scale-back operations and their burden on the public budget or use existing resources for wider public purposes.

Some parts of the program could clearly and easily be replicated, with adjustments to local conditions. Examples include: (a) the structure and procedures elaborated for the Foundation and for the different competitive funds; (b) procedures used by INTA for farmers to share costs of the extension agents; and (c) INTA procedures for contracting out services to private providers of technical assistance.

Lessons Learned

The first two years of implementation of the program led to encouraging results. In fact, there is consensus among stakeholders that the overall performance is above expectations. This may be because of the use of an innovative mechanism initiating and guiding this change, and, more importantly, maintaining its momentum.

Although the focus of the program is on gradual (and therefore medium- to long-term) change in the composition of the agricultural knowledge and innovation system, it was soon recognized that maintaining enthusiasm and political support for this would require some concrete results in terms of impact in the short term. It also became clear that many of the reforms would take quite some time to show results (whether strengths or weaknesses). It was also clear that a monitoring system and preemptive mechanism were needed to spot potential implementation risks early enough to allow corrective action. Therefore, the government has decided to embark on a series of "rapid results" initiatives to build a portfolio of short-term results-producing initiatives. These rapid-results initiatives will provide an opportunity for learning about implementation risks and issues, and ways of tackling and mitigating these.

⁵For example, another project is subsidizing information activities by private seed dealers promoting improved seeds; a clear example of public cost and private benefits.

Tackling this implementation challenge required leadership at all levels of society and in all relevant sectors to conceive strategies for making change happen, and organizing, mobilizing, and energizing people at all levels to take collective action on these strategies. This called on the “leadership groups” to work differently with their constituencies, and required them to behave in new ways and to lever new skills. It also called on the World Bank team to play a critical, catalytic and facilitating role as advisers, coaches, and partners to their counterparts in these “leadership groups.”

The first cycle of initiatives developed ownership and accountability for results at the local level and helped in regaining political support. More importantly, it developed a positive sense of “challenge” at all levels about what needs to be achieved. This helped develop a deeper understanding that only the achievement of actual results would pave the way to a longer-term strategy for making change happen. Lessons learned to-date can be summarized as follows:

- ❑ Reforms must be devised as a whole and must be approached together, linking institutions that rarely act together. The role of an external agent can be very instrumental in breaking the status quo.
- ❑ Although there are important exceptions, existing institutions, like INTA and MAG-FOR, are generally headed and staffed by individuals, who consciously or unconsciously resist change. Once again, external individuals or teams can accelerate the innovation process.
- ❑ Institutional modification and institutional capacity building demand long-time efforts of dedicated persons. This justifies longer term programs and focus, but should not become an alibi to neglect the technical, social, and political need to achieve quick results;
- ❑ Selection criteria for staff should take into consideration their capacity to get results on the ground rather than relying heavily on formal education qualifications;
- ❑ External expertise is required, not only in order to provide inputs and suggestions from other successful experiences, but more importantly to provide advice that can readily be interpreted as technically sound rather than politically motivated;
- ❑ A continuous feedback is needed, in order to introduce changes to procedures that prove to be ineffective;
- ❑ The development of a proper communication strategy should be given serious attention from the very inception of the program. Besides the classical communication for development elements typically embedded in extension activities, a more sophisticated strategic communication approach should be considered to promote reforms. Besides farmers, communications activities need to target policymakers, opinion leaders, donors, and even urban populations.
- ❑ Technology generation and transfer in combination are necessary but not sufficient conditions to increase productivity. Increasing productivity alone will not guarantee an increase in net income and well-being. In a competitive and open environment, emphasis must also be given to other important factors, particularly the development of infrastructure, marketing, and farmer organizations.

Guidelines for Implementing Reform

As part of a broader agricultural growth strategy, the government of Nicaragua is financing and actively promoting the creation of an efficient, demand-driven, agricultural technology knowledge and innovation system that is responsive to farmers’ needs. Although the first, encouraging results have already taught many important lessons; it is difficult at this stage to lay out guidelines that could serve as a practical

input for other countries interested in replicating the reform. The line of actions at the core of the institutional reform in Nicaragua includes:

Repositioning INTA. In a free market environment, where advisory services can effectively be offered by a number of actors, the public sector should concentrate on creating a policy and regulatory environment and on improving the quality of services that only the government can offer. The Nicaraguan Institute for Agricultural Technology's (INTA's) new role as a second-tier institution should (a) focus on public-good related research and maintain strategic research programs of national interest, (b) serve as the "think-tank" for agricultural technology issues, including biotechnology, (c) become the technology bank for the agricultural sector and diffuse new technologies to service providers, (d) open up regional research centers to local stakeholders in setting up the research agenda, and (e) maintain strong linkages with international institutions and networks associated with the Consultative Group on International Agricultural Research (CGIAR) and adapt CGIAR-developed genetic materials to local conditions.

Supporting FUNICA. FUNICA's role in the medium term should be at the center of MAG-FOR attention with FUNICA serving as a functional forum for consensus building among public and private actors represented therein. Through FUNICA, the government can launch competitive calls-for-proposals and award research funds to different research institutions, establish partnerships with overseas universities of high reputation, and develop a competitive fund for extension and eventually for other activities (technical education, marketing, and pre-investments).

Developing a competitive market for agricultural training. The success of technology transfer and adoption depends *inter alia* upon regular training of technical assistance providers as well as receivers. Communications between researchers, extension agents, and farmers can be facilitated by: (a) "training-the-trainers" programs aiming at updating scientific knowledge and skills of service providers; (b) reform the system of agricultural technical education; open it up and provide opportunities to private service providers; and (c) strengthening of human resources for the public sector with regular training for key technical staff. Strengthening the institutional capacity of INATEC to manage this process will be key to the success of this initiative.

Increasing the flow of information. With markets playing a more important role in the decision-making process of producers, development of an integrated market and price information system could have a large pay-off. This could be achieved by integrating different existing subsystems handling information related to agricultural prices, marketing, technology, and training, which link these to regional and international databases.

Reform will be successful if, by the end of the program (a) the main public agricultural technology institutions are providing effective, coordinated sector policy guidance and client-responsive services; (b) the private sector, non-governmental organizations, and educational institutions are participating significantly in providing agricultural services to client farmers; (c) the public sector is proactively undertaking strategic and basic research and providing advisory services that generate positive externalities; (d) a national agricultural technical education training strategy has been implemented; and (e) timely, high-quality agricultural and market information is available to technicians and farmers.

References

Agrodiversos. 2000. "Análisis del Impacto de la Comunicación en la Adopción de Tecnologías Agropecuarias en Nicaragua." mimeo. Managua: FUNICA.

- Arguello M. 2002. "Nicaragua: Tecnología Agro-Pecuaria –Su Rol en Uuna Política del Sector *Rural Productivo* (mimeo). Managua: Banco Mundial.
- Christoplos I. 2001. "Extension, Poverty and Vulnerability in Nicaragu." Country Study for the Neuchatel Initiative, Working Paper 150. London: Uppsala Universitet, ODI.
- Dinar A., and Keynan G. 2000. "Cost and Performance of Paid Agricultural Extension Services: the Case of Agricultural Technology Transfer in Nicaragua." mimeo. Rural Development Department. Washington, DC: The World Bank.
- Dinar A., and Keynan G. 2001. "Economics of paid extension: Lessons from Experience in Nicaragua." *American Journal of Agricultural Economics* 83 (3): 769-776.
- DSE/MAGFOR - NITAPLAN – UCA.2002. "Sistema de Evaluación de Impactos del Programa Nacional de Tecnología y Formación Técnica Agropecuaria." mimeo. Managua.
- Keynan G., M. Olin, and A. Dinar. 2001. "Co-financed public extension in Nicaragua." *World Bank Research Observer* 12 (2): 225-247.
- NITAPLAN – UCA. 2001. "Línea de base del Programa Nacional de Tecnología y Formación Técnica Agropecuaria." Managua.
- World Bank. 2000. "Agricultural Technology Project." Report No. 20168-NI. Washington, DC: The World Bank.
- World Bank.(2002. "Nicaragua: Promoting Competitiveness and Stimulating Broad-based Growth in Agriculture." Draft. Washington, DC: The World Bank.

Note on the Authors

Norman Piccioni is a Senior Agricultural Economist for the Latin American Region at the World Bank, where he manages tasks related to policy and operations in agriculture, rural development, and institutional development. His major interests are rural institutional development and enterprise development in agriculture. Norman Piccioni holds an MBA and a degree in Agricultural Economics (Dissertation on Agricultural Extension) and has worked extensively for NGOs, UN agencies and the private sector.

Fabio M. Santucci is Associate Professor for Agricultural Economics and Policy at the University of Perugia, Italy. After his Dissertation on Regional Decentralization in 1978, Professor Santucci has been actively involved in many extension and rural development projects. His major interests are institutional organization, communication, and organic farming. He speaks several languages and has worked in Cape Verde, Zambia, Ethiopia, Somalia, Cameroon, Syria, Algiers, Poland, Georgia, Brazil, Panama, and Nicaragua.

Uruguay: Reform of Public Sector Agricultural Extension

Santiago Cayota

In Uruguay the reform of the public sector agricultural extension system came as the result of the application of isolated measures and specific projects. It was not the product of an integral and coherent transformation strategy. The idea behind the different initiatives was to change from a situation of work of public institutions being based on diffuse and general goals to one in which objectives were defined in projects with quantified objectives and deadlines. With this background in mind, the intention was to transfer responsibility for delivery of technical assistance services⁶ from government employees to private consultants. At the beginning of the programs, fees for these advisory services consultants are almost totally financed by public resources. It is expected that farmers will gradually pay an increasing part of these costs, eventually paying 100 percent.

What has happened is more a process of partial changes accumulating, rather than a one time implementation of a planned and coherent reform. If we call this process “reform,” it can be said that it started in 1990 and continues today through different government measures and decisions. There was no document or global pronouncement from the government stating the need for reform or establishing its main objectives and strategies. The reform is the sum of isolated actions that were not framed in a strategic and global proposal for transformation of the public extension system. Nevertheless, from the evaluation of different documents and official statements it can be said that the main motives for the extension reform were: (a) the ineffectiveness of public sector agricultural extension services; (b) the need to reduce fiscal deficit; and (c) the requirements of international institutions financing extension programs.

Before the reforms, Uruguay’s public extension institutions consumed a very significant volume of budget resources, but without showing evidence of working efficiency. The farmers who theoretically benefited from programs, received free technical assistance from the state, but were not able to choose their extension technicians according to their own preferences. In practice, public technical assistance services were shallow and produced few significant impacts.

Brief Description of Reform Measures

The extension service reforms were imbedded in a new set of projects launched to promote technical assistance service delivery by private individuals or technical consultant firms. Under these projects, services were subsidized on a declining basis. In the beginning, the farmer would pay a modest part of the cost of technical assistance (usually 10 to 20 percent). This contribution then is supposed to grow to cover the 100 percent of the cost after a period of four to six years. Under these projects, the farmer has the freedom to choose the technician he or she wants from a list of technicians authorized by the project. The new programs are much more focused, defining more precise criteria for their objectives and the target population.

⁶*Technical assistanc* is used herein to refer to extension or technical advisory services for farmers.

Nowadays, the state is no longer the direct supplier of services, but rather, has become the system organizer and supervisor of the performance of private agents of technical assistance. Nevertheless, public institutions that had been created to assist in technology transfer still exist, but have reduced their level of activity. The central elements of reform were: (a) a focus on specific beneficiary populations and precise definition of objectives to be achieved in each case, and (b) technical assistance provision by private firms and individuals with subsidies by the projects and with partial and increasing co-financing from users. Institutional reforms were initiated by the government and approved by Parliament. Project formulation and design was based on collaborative work of government technicians and staff from international institutions financing the projects.

The most important projects were: PRONAPPA financed by the International Fund for Agricultural Development (IFDA) to overcome rural poverty; PRENADER financed by the World Bank to develop irrigation; PREDEG financed by the Inter American Development Bank (IADB) to develop vegetable and fruit exports; and PRONADEGA financed by GTZ to support small farmer cattle production. More recently the government has initiated PROYECTO GANADERO financed by IADB to support growth of livestock production.

The projects are managed by the public sector, as the government names the project directors. However, different mechanisms have been incorporated to allow for consultations with farmers' organizations on project activities. The main changes introduced in this process were:

- ❑ a significant decrease of presence and number of activities directly implemented by public sector agencies in the agricultural sector;
- ❑ technology transfer by private consultants financed with partial subsidies from projects;
- ❑ a focus of work on defined segments of the rural population or specific problems;
- ❑ partial incorporation of non-technological issues (e.g., marketing, farm management);
- ❑ increased farmer participation in project management and in technical assistance programs; and
- ❑ decentralization of decision-making within the PRONAPPA project. (Other projects have continued to work from a more centralized level.).

Technical assistance services are now provided through specific projects with subsidies from the projects and co-financing from farmers. Projects have systems for monitoring and evaluating the quality of services given by private consultants. To this end, they perform farmer satisfaction surveys, technical audits of consultant companies, and periodic evaluations of goal fulfillment.

Impacts of Reform

Overall impacts of the reforms have been positive. Technical assistance quality and training have improved. The number of farmers that get technical assistance services and good quality training has also increased. A market for technical assistance services has also begun to develop. Farmers have begun to change their attitude toward extension services, and have increased the value they assign to technical assistance and training. They now show an inclination to pay for services that previously, at least in theory, they received for free.

The logic of extension work has changed, shifting from a focus on general activities without specific objectives to one of projects with quantified objectives, defined time periods, and specific resources. Performance standards have become measurable and assessable. Technical assistance methodology has also begun to change positively. Work based on farmers groups is more common, and management and marketing aspects of farming operations are more often incorporated into technical assistance services that take a holistic view of a farming enterprise's problems. Because the impact of these programs has not been quantified, a comprehensive study of costs and benefits would be useful to inform future policy development. Indicators that could be used to measure program impact are:

- ❑ A predisposition of the farmers to hire and pay for technical assistance and training.
- ❑ Numbers of farmers that effectively hire technical assistance with their own resources, in individual or group form.
- ❑ Number of groups of farmers that share technical assistance.
- ❑ Number of groups of farmers that go on working once project subsidies end.
- ❑ Productivity and incomes: productivity of resources, incomes, and extent of adoption of new technologies.

An extension system structured around the logic of projects has significant advantages compared to previous public extension services. The new extension programs are:

- ❑ More flexible and better able to be adapted to the needs of the target population.
- ❑ More effective in that work is based on objectives and defined deadlines.
- ❑ Made more efficient by recording and monitoring activity costs.
- ❑ Better able to be self-correcting in that they do not have rigid contracts and hierarchic bureaucratic structures, as found in traditional extension systems.

These changes benefit farmers and society as a whole, because they allow for a more effective and efficient use of the resources invested in the agricultural sector.

The old institutional form of extension did not disappear after the start of the new projects. Thus, there exists in the public sector two different extension program approaches operating at the same time: a traditional one based on institutions and another more modern one based on projects. As a consequence, in any given sub-sector, there often exist in parallel a public specialized institution and a specific project, both operating independently but with over-lapping functions and activities. Resource use is inefficient, and competition between organizations works against the effectiveness of the system as a whole.

The greatest benefit from the new system is that a larger number of farmers have access to technical assistance and training services of good quality. Factors critical in driving reforms were: (a) the quality of the change proposal; (b) the quality of management and implementation leadership; (c) the strategy to promote a cultural change and a new attitude by the farmers, making them more active and less dependent on state action; and (d) the economic conditions prevailing in the sector. With better economic and market conditions, changes are more easily introduced, particularly the hiring of private technical assistance.

Sustainability and Replicability of Reform

Donor funding has been important to institutional reform and it is not entirely certain whether these reformed extension programs can be maintained in the future. The threat to the reforms is basically due to factors external to the reform itself. Uruguay is going through the biggest economic crisis in its history.

This situation affects the ability of farmer groups to sustain themselves. Financial constraints have developed before groups could grow to maturity and be in a condition to work independently. Even though this is due to external factors, it can have a negative effect on the whole system.

An evaluation of the costs and coverage of the new extension systems would be important in assessing the client bases for services and the potential for client support to influence future public sector financing for the programs.

Most of the projects have the same characteristics as other projects in Latin America. Therefore, there are no general strategies that could be considered original and specific of the Uruguayan experience. The approaches and mechanisms used in Uruguay should be applicable in other situations, if properly adapted to the context. Measures useful to extending and deepening the reforms would include:

- Eliminating the overlap between public extension programs, that work according to traditional logic, and projects that function with the more modern logic.
- Involving farmers and their organizations more deeply in program design and implementation by: incorporating human resource development as a priority component of any strategy for agricultural development and by improving project-monitoring systems.

Lessons Learned

1. The increasing co-financing of technical assistance by farmers is a valid mechanism but it must be adapted to practical constraints. In the programs developed in Uruguay, the farmer does not feel that project resources are his or her own, and therefore does not care whether the service received is of a good enough quality. One way to resolve this problem is to give farmers the money to pay consultants directly. In this manner, the subsidy would be much more appreciated by the farmers and they would worry about its good use. This mechanism has some practical problems, but these could probably be resolved.

2. The effectiveness of the system of user co-financing of technical assistance depends on the users' socioeconomic characteristics. In the case of farmers under the poverty line, it is practically impossible for them to finance technical assistance with their own resources once a project finishes. On the other hand, in the case of farmers with a more commercial profile, the system has shown itself to be efficient in stimulating the development of a technical assistance system based on private consultants.

3. Public institutions in charge of traditional extension services have a capacity to resist change that cannot be overlooked. Experience in Uruguay shows that in certain cases representatives of such institutions have succeeded in neutralizing the reform projects by using influence at the political level in Parliament and with the executive branch of government. They are working from inside the very same political sectors that impelled the reforms. Furthermore, the reforms involve a very important change in the public sector role, a change for which it is not sufficiently prepared. Because the reforms require capacities and responsibilities that the public sector normally does not have available, these capacities and associated attitudinal changes must be developed at the same time they are being put in to practice.

4. Advisory service needs are not limited to technological and production aspects of agriculture. Financial-economic, commercial, organizational and management aspects have an increasing importance in farm business. This should be taken into account in two ways: (a) consideration must be given to financing and subsidy policies for technical assistance; and (b) it must also be recognized that service providers often do not have the necessary capacity to provide the diverse types of technical assistance needed by producers, and consequently, reform strategies will need to foresee the development of service providers' capacities.

5. The profitability and stability of the business environment has a decisive influence on the depth and the impact of reform of the extension system. Adverse macroeconomic factors, unfavorable climatic conditions, unfavorable incentives and prices, and pests and disease can all prevent extension reform from having desired impacts on productivity.

6. An extension system based on projects must have a stable institutional framework that provides stability to the system and continuity to the policies. There is a risk that much can be accomplished by projects, but that this progress can easily be lost when they come to an end.

In Uruguay, the most important factor propelling the reform process has been the generally positive performance of the new projects. However, there did not exist a formal mechanism to start and guide the process of change. In replicating these reforms, the following practical guidelines derived from the Uruguayan experience need to be kept in mind:

- ❑ Stimulate participation of all actors involved (farmers and extension advisory service consultants) in the design and management of programs.
- ❑ Put into practice from the beginning an information system that generates information on program performance and impacts on beneficiaries.
- ❑ Pay particular attention to ensuring that the political system understands the importance and the need for change.
- ❑ Be especially careful in the selection of staff to lead the process, avoiding recruiting for reasons which are not strictly related to technical capacity.
- ❑ Work with contracting procedures and formal and systematic evaluation practices that avoid political pressures and subjective preferences.

Note on the Author

Santiago Cayota is an Agricultural Engineer graduate of the Agronomy Faculty of the Republic University (Uruguay). He holds a Master Degree in Agricultural Economics from the University of Louvain (Belgium) and has worked as a consultant in his specialty for IICA, BID, the European Union, UNDP in Uruguay, Chile, Panamá and Paraguay. He is currently a Professor of Investment Project Evaluation at the Catholic University in Uruguay, and a consultant to the Uruguayan Ministry of Livestock, Agriculture, and Fisheries (scayota@multi.com.uy).

West Africa: Adapting Agricultural Extension to the Changing Rural Development Context – Lessons from the

Research-Extension-POs Partnership Network (REPO-Net)

Jean Sibiri Zoundi

How should the provision of agricultural services adapt in the face of the changing development context in West Africa sub-region?

Socioeconomic and policy reforms induced by structural adjustment policies, liberalization of trade, and democratization have modified the institutional environment in different countries in sub-Saharan Africa. The disengagement of the states and decentralization have favored the emergence of new actors: producers' organizations, the private sector, and local authorities. Meanwhile, the imperative to tackle key questions related to poverty alleviation has led to new challenges in the agricultural sector, especially as related to the provision of agricultural services, professionalization, and promotion of specialized production. Small-scale producers must rely to a greater extent on markets for inputs and sale of their products and must compete in these increasingly competitive markets. Enhancing competitiveness is critical to survival and prosperity of small farms.

Extension systems based on the Training and Visit (T & V) approach have not succeeded in meeting producers' needs. This induced a number of permanent changes observed since the 1990s within agricultural institutions and in thinking on various topics, including: organization of research and extension institutions, the role of producers' organizations (POs), and appropriate funding mechanisms. Box 5.1 illustrates the ongoing reflections in Burkina Faso since 2000.

To address these multiple challenges, African governments in collaboration with development partners have initiated a number of reforms. These initiatives have generated convincing results in some cases, but remain in the experimentation stage, and hence no clear conclusions can be drawn. A sub-regional consultation network on partnership between Research-Extension-Producers' Organizations (REPO-Net) was organized to explore issues affecting agricultural services. The objective of the network is to analyze and capitalize upon on-going experiences in different countries in order to provide decision-making tools to different target groups: research and agricultural extension institutions, producers' organizations, and development assistance agencies. The network is the fruit of commitment of countries in West and Central Africa, and development partners, especially the World Bank Group and French Cooperation. Countries involved in the network's annual discussion include: Benin, Burkina Faso, Ivory Coast, Guinea, Mali, Senegal, Chad, and Togo.

Discussions within REPO-Net are organized annually. Topics tackled during the past three meetings were: (a) sustainable funding mechanisms to meet producer organizations' needs for research and extension services, (b) strengthening producer organizations' capacities for formulation of research and extension needs and improvement of their institutional and economic capacities, and (c) the producer organizations and professionalization—implications for agricultural research and extension institutions. Participation in these discussion fora is summarized in Table 5.1. This case study note summarizes the experiences, lessons and points of view from various practitioners (researchers, extension agents, producers, and development partners) and synthesizes the results of the learning workshops held in Burkina Faso in 2000, in Benin in 2001 and in Guinea in 2002 to assess progress.

Table 5.1. Participation in the Different Workshops

	<i>Ouahigouya (Burkina)</i>		<i>Abomey (Benin)</i>		<i>Labé (Guinea)</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Extension	19	26	17	33	13	26
Research	18	25	14	27	12	24
POs, Chambers of Agriculture, Agricultural Trade Unions	27	38	15	29	19	38
NGOs/Services providers	2	3	4	9	6	12
Development partners	6	8	1	2	-	-
TOTAL	72	100	51	100	50	100
Participation countries	Benin, Burkina Faso, Ivory Coast, Guinea, Mali, Senegal, Togo		Benin, Burkina Faso, Guinea, Mali		Benin, Burkina Faso, Ivory Coast, Guinea, Mali, Senegal	

Source: Authors

Key Lessons Emerging from REPO-Net Discussions

The perceptions of the practitioners and analysis of different on-going experiences with agricultural services provision yields the following lessons:

A broader extension agenda is now seen as essential to extension effectiveness. Actors are unanimous that extension must no longer be perceived as only a means for the technical training of producers. It must also address wider areas of concern taking into account other services and upstream and downstream factors that condition the capacity to capitalize on technical innovations. Moreover, it should play a “facilitating and advisory-support role” for producers rather than a “simple function of technology transfer to inactive beneficiaries.”

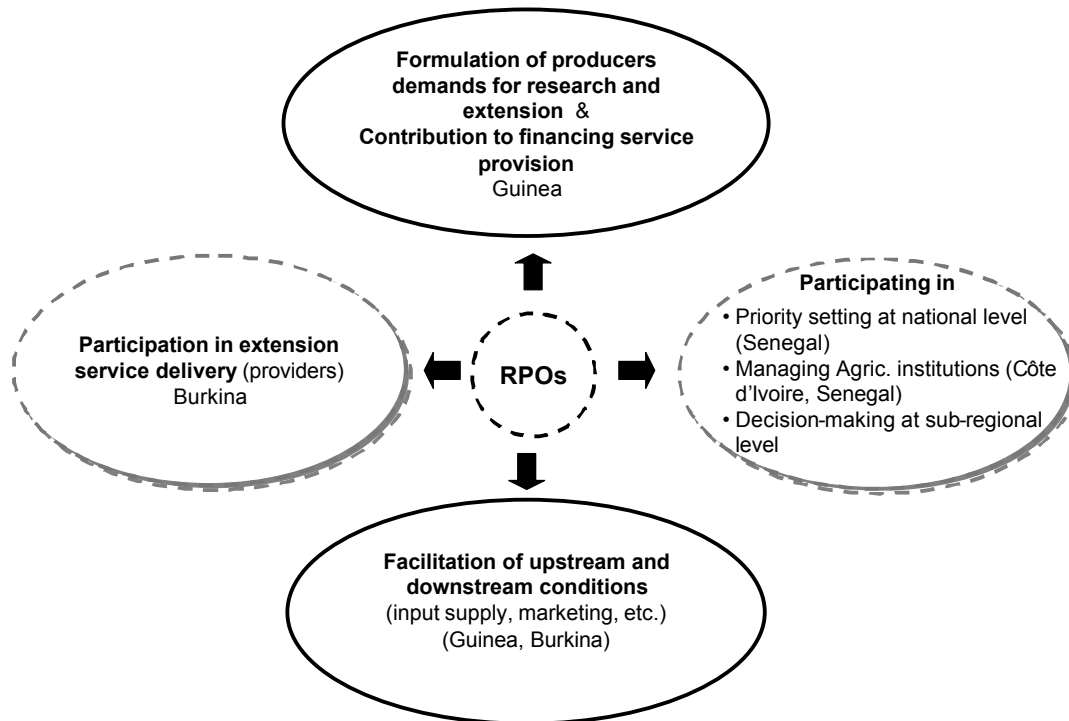
A demand-driven services provision approach is imperative. Producers are now perceived as partners with the capacity to express their demands. In this context, rural producers organizations (RPOs) can contribute to the aggregation and formulation of farmers’ demands for agricultural services, as depicted in Figure 5.4.

Contracting and the quality of services are important considerations for extension services. Public extension institutions are never the only providers nor do they have a monopoly in the supply of agricultural services to producers. For effectiveness and quality purposes, provision of services is often best organized through contracting.

Service providers need to be accountable to producers for results. A concern with effectiveness and performance suggests that each public or private service provider should report to producers on the results of its activities.

Separation of funding for basic operations of public extension programs from funding for specific agricultural investments allows for a better understanding and appreciation of the impacts of extension. This separation of funding helps in assessing the separate impacts on economic, social or environmental indicators. It conditions fund-raising and allocation of scarce resources for the agricultural sector. The principles behind this separation of funding are already being applied in some countries. However, their implementation requires many reforms (i.e., change of status and intervention approach) within public extension institutions.

Figure 5.4: Rural Producers Role in Extension In West Africa



Emergence of producers’ capacity for “self-development” empowers rural people. This gives producers the ability and the responsibility for initiating their own projects, supervising their implementation, and evaluating their results. This requires strengthening of producers’ strategic and economic capacities. In fact, practitioners are unanimous that state disengagement from the agricultural sector has occurred without a relevant policy for producers’ capacity empowerment. Despite this situation, described by some as “state resignation,” many countries have drawn up “decentralized rural development policy letters” taking into account the concern for self-development capacities of producers. Rural producer organizations are already playing many roles in extension (see figure 5.4).

Sustainable Funding for Agricultural Extension Institutions

In many countries, big gaps exist between the good intentions of those in power and the reality of support given to the agricultural sector, and particularly to agricultural extension. The many demands emerging from multiple structural adjustments reforms have aggravated this situation. One consequence is that public extension institutions are today being dismantled or lack staff and financial resources necessary for efficient operation.

Several potential sources exist for funding producers’ advisory services needs such as loans, levies raised from sales of agricultural products, and producer organizations’ own resources. Despite the diversity of these funding options, in most countries, funding for extension remains a serious problem. Producers’ access to credit is constrained by the poor development of decentralized financial systems. It is in this context that ongoing experiments in several countries are addressing problems of funding and organization of extension institutions. Initiatives, including the National Agency for Rural Development (ANADER) in Ivory Coast, the National Agency for Agricultural and Rural Advice (ANCAR) in Senegal (see figure 5.1), and the Advice and Technical Support Institute (ICAT) in Togo, are based on producers

contributing share capital to the institution. This gives them the right to put forward their requests within these institutions. Nevertheless, these initiatives are still in an experimental stage and in the specific context of countries where favorable conditions exist for producers to contribute to share capital. No firm conclusions can yet be drawn. However, the different practitioners involved with the experiments generally accept certain key principles outlined as follows in box 5.3.

Box 5.3. Toward A New Extension Approach

In Burkina Faso, a national agricultural extension system derived from the “*training and visit*” approach was introduced in 1989, but proved inappropriate to meet producers’ needs, which reflect the needs of many grassroot communities. This situation led ministries of agriculture and animal resources to design a new approach to extension and to agricultural services provision in general. The main principles behind the new approach are based on a vision defined by the government in a decentralized rural development policy letter written in 2000. These principles include: (a) extension must adopt a larger vision, taking into account both training and information needs as well as required services upstream and downstream from farm production; (b) self-development requires that organized grass-root communities take responsibility for all development activities; and (c) approaches and extension tools must be flexible and able to respond to different situations such as subsistence agriculture, and specialized production).

Organization for demand: Agricultural services are provided on the basis of demand expressed by producers and their organizations for the financing of projects or micro-projects from which training and information activities are derived. Producers are given responsibility at all levels (village, department, province, region) for demand identification, prioritization, and selection. Extensionists from public or private extension institutions play a supporting role.

Organization for agricultural services provision: Services are provided under contract. The public services do not have a monopoly on agricultural services provision and the choice of service providers is dictated by the principle of comparative advantage as far as competence and cost/effectiveness ratios are concerned. All providers (public or private) are accountable for results to producers. Assignment of public extension specialists is made according to the existing producers’ demands.

Funding mechanisms for agricultural services: Funding for extension services is separate from that related to specific agricultural investments. Producers participate in funding of extension activities whatever their form or nature. The state is responsible for financing agricultural investments (i.e., rural infrastructure) and human capital reinforcement (i.e., basic education and literacy).

Organization for implementation: Implementation of effective programs generally requires:

- Empowerment of producers’ capacities to undertake self-help activities;
- Reorganization of present extension networks and training of agents for new tasks and strategies;
- Review of procedures and regulations related to extension structures and drawing-up of appropriate statutes for the staff favoring promotion of demand-driven services and contracting;
- Training of specialized agents according to producers demands;
- More sustained orientation toward professionalization of agriculture;
- Development of private initiatives to manage upstream and downstream factors;
- Development of private expertise and capacity within a number of private services providers.

Source: Authors

Producers’ participation in funding extension services activities. Through their professional organizations, producers accept the principle that they must contribute to funding of extension activities. This gives them the right to ask for accountability. However, producers’ organizations are not very

willing to finance agricultural institutions that they cannot supervise and for which impacts are not evident. The dominant vision is that of producers participating in provision of share capital to become the owners of extension institutions. Adequate economic capacity is required for producer organizations to play this role.

Contribution of agricultural products taxes. Whatever the method of funding extension, some of the resources may logically come from a part of the proceeds from taxation of agricultural products. Such tax receipts should be reinvested in the agricultural sector, more particularly to benefit agricultural institutions such as research and extension and producers' organizations. Rather than using taxes for general revenue purposes, the policy focus might be on levies, revenues collected from sales of agricultural products and designated as "belonging to" the sector for use by sector (producers') institutions.

Purchase of agricultural services by the producers themselves. This principle supposes that the funds be directly at the producers' disposal and that the producers organize themselves in order to contract services and make payments. A prerequisite for implementation of such a mechanism is that producers through their professional organizations endowed themselves effectively with capacities to manage such funds. This requires that questions of democracy and management transparency within producers' organizations be effectively settled; producers' organizations must be more accountable to members.

Agricultural professionalization and producers' expectations. Professionalization is a process that makes one's employment become considered as a "mode of life in a job economically profitable and socially acceptable." Professionalization has two dimensions. First, an individual dimension requires that each producer master the management of his or her farm such that its productivity yields a satisfactory income and quality/cost ratio. Second, a collective dimension requires that all producers put their efforts together through their organizations (professional groups, agricultural trade unions, chambers of agriculture) tackling problems faced by the profession, defending their professional interests, and competing at local, national, and international levels. This vision of producers' professionalization leads to some specific expectations as regards extension.

Extension oriented to reinforce agricultural professionalization. At the individual farm level, extension services must help producers to master techniques and socioeconomic knowledge necessary to improve the productivity of their farms. Extension programs should also be equipped to give useful advisory services and information support for marketing and building the various networks critical to success of the farm enterprise. Community capacity building approaches also need to be reinforced and better integrated into extension systems.

Extension to provide tools for farm management. Expected improvements in productivity and quality-cost ratio require that producers have better decision-making capabilities for farm management. Producers must make decisions on what to produce, when to produce, and what to do with production and generated income. Thus, extension systems should be made better able to satisfy these new needs. Building on innovative approaches such as the *management advice for family farms* seems to be well justified.

In Burkina, Mali, Benin, Cameroon, and Ivory Coast, such approaches are already in the process of experimentation and have yielded promising results, particularly for cotton and market-garden farming systems.

Durability and Impact of Reforms

The REPO-Net sub-regional consultation network has generated a number of results, principally the sharing of practitioners' perceptions of on-going and planned reforms within agricultural institutions and the definition of guiding principles to sustain the reforms. Some of the ideas and principles were applied in Burkina Faso in the design of its new extension approach. Although it is early to make any assessment, “*demand-driven service provision*,” and “*services contracting*” have been incorporated into Burkina Faso's Second National Project for Development of Agricultural Services and provide the following preliminary lessons:

Demand-driven service provision has been effectively applied with the help of a procedures handbook and information sessions that allowed producers to express their demands through their organizations. This illustrates the motivation and interest the producers and their organizations have in this new approach. The main weaknesses noted are: (a) difficulties for producer organizations in analyzing their environment and formulating projects for their members, and (b) inadequate producer participation in priority setting and project selection procedures. These require considerable organizational capacity. These weaknesses reveal the fact that producers' institutional and strategic capacities at present do not allow them to play the “self-development” role as completely as required in a “demand-driven service provision” system.

Contracting of services is an important element in projects that rely on service provision contracts between producers' organizations and service providers defining prescribed roles and obligations of each party. Funds directly allocated to producers' organizations to make service payments facilitate these arrangements and empower producers. A weakness is the limited number of service providers working in the agricultural sector. This raises questions of how to promote development of service providers, as a diverse set of service providers allows producers multiple choices in contracting and helps to guarantee quality of services offered. The other weakness is in the difficulty some producers' organizations have in fund management despite having simplified procedures. This suggests that training is necessary to develop required skills for producers' organizations to manage public funds.

Implications for Policymakers and Development Assistance Agencies

Community livelihoods and their impact on extension systems. In most countries, the basic social needs (sanitation, water supply, and education) are not satisfied in rural areas and this means that social concerns often have to take priority over agricultural initiatives. It appears necessary to design extension structures according to an integrated vision taking into account all aspects of the production environment and of other factors affecting livelihoods of local communities. Some program approaches already integrate this multi-sectoral approach, which should be a requirement for all agricultural extension support programs.

Human and social capitals and their links to extension: Investments in human and social capital are a precondition to building a real agricultural development base. Therefore, questions relative to producers' basic education as well as the reinforcement of their organizational capacities take on a critical importance. The design of extension support systems should take into account these social factors affecting performance and impact of extension institutions.

Diversity of contexts and their impact on the choice of an extension approach. The diversity of on-going experiments clearly indicates the complexity of the reforms needed in extension institutions. It appears difficult to envision any miracle cure or standard that will fit all situations. In fact this must be resisted.

Development assistance agencies will need to: (a) accept the fact that agricultural and social contexts are very different from one country to another and that there is no standard cure for all; (b) develop careful approaches in design of reforms and in their implementation in order to minimize negative consequences; and (c) pay greater attention to approaches that favor endogenous discussion and solutions within countries and so allow them to make responsible choices of reforms to be undertaken. Governments and national development actors must become more involved in prospective reflections on agricultural policies and extension approaches and in particular must have monitoring and evaluation systems that allow them to anticipate developments and make adjustments to reforms, as required.

Note on the Author

Jean Sibiri Zoundi, Burkina Faso. Emails: zoundi@hotmail.com or zoundi@fasonet.bf.

Learning From Case Studies On Extension System Reform

The case studies contained in this compilation richly illustrate many of the conclusions of the 2002 Extension Workshop hosted by the World Bank, USAID, and the Neuchatel Initiative (World Bank 2002). Reforms in extension systems and services are ubiquitous, ongoing, and probably a permanent feature of the sub-sector's institutional and programmatic development. This concluding note highlights three general observations based on the case studies, summarizes twelve main findings drawn from the studies, and discusses a number of future challenges to extension and rural development.

General Observations

The role of the public sector in agriculture and rural development continues to undergo change, renewal, and experimentation, as the case studies in this volume make abundantly clear. Changes in funding, management, and delivery of extension services reflect a new vision of extension as being the ultimate responsibility of the client (the farmer) based on a set of new creative partnerships among government, the private sector, and civil society for service provision. The current stage of extension's transformation is from innovation to execution.

Intimately linked with this transformation is a change in the nature of agricultural research and the structure of the agricultural sector. The commercialization of agricultural research and technology continues to have a profound impact on the public agricultural technology transfer system and hastens its need to incorporate private sector entities into a more inclusive, institutionally pluralistic extension system. As a result, the private sector has become a major player in the public sector's strategy for agriculture and rural development.

Thus, a new array of extension providers characterizes the field, and underscores the complex nature of coordinating and managing these activities. In other words, it is no longer realistic to view extension as technical activities carried out by one or more organizations, but as a complex of long-term, multi-activity endeavors implemented by networks of country institutions in multiple locations whose objectives and goals derive from indigenous policy choices. All of these endeavors revolve around the farmer—or more broadly around the rural population—providing a menu of options for innovation, information, and investment.

This view of extension systems as a complex network of institutions supporting rural innovation might seem to imply that public sector responsibilities have diminished with the growth of multiple service providers. In

fact, they have probably grown. New realities require policy and institutional changes relating to the allocation of responsibilities and resources among providers, the coordination of the components of the system, and accountability of these different parts.

Also, notable throughout this volume is that the changes affecting extension are symptomatic of wider forces at work in society. Broad trends are affecting twenty-first century development of the agricultural sector. Three general observations are enumerated below which suggest a convergence of views on extension development. Gleaned from both the workshop and the case studies, they highlight major changes in perception and practice emerging in agricultural extension reform. They also underline the importance of complementarity, and the need for synergistic, policy and institutional approaches to the pluralistic complex of extension actors.

Extension needs to be, and in many cases is, more broadly conceived than has traditionally been the case. This new outlook requires government to undertake broader plans for designing and implementing extension services. Although the case studies do not necessarily show how this can best be accomplished, many do note the need for a broader extension and information services agenda; and experience in this direction is accumulating.

Agricultural and rural development are often mentioned together, as are the terms agricultural and rural extension. “Agricultural extension” is often used interchangeably with the term “rural extension” and vice-versa. Rural development includes but nonetheless expands beyond the confines of agriculture. Stated another way, rural development involves and requires developments other than in agriculture.

Broadly conceived, the “non-agricultural-production” rural extension services fall into three categories. First are the “home economics extension” services that target farm women principally with information on family issues of nutrition, health, education, and welfare. These have traditionally been a part of extension mandates, but are often neglected and warrant increased attention. The second set of extension services—related to the agricultural production core agenda—include marketing, environmental conservation, and farmer organization development. These are currently receiving much more attention, though extension programs have not always fully learned how to deliver such services effectively.

The third set of services relate to rural development in general, including off-farm employment opportunities and general adult education. Being more varied and less closely linked to agriculture, it is more difficult to find an institutional “home” for these services and to link them into an overall “rural extension” program. Rural development tasks associated with rural extension would likely include micro-enterprise development, non-formal literacy education, family planning, nutrition, health, and other rural, non-agricultural areas. It would be easy to state simply that these tasks must be assigned to either a separate or integrated extension staff. Certainly, it cannot be assumed that specialists in agriculture will overnight become specialized in these other, equally demanding, practices. Elsewhere (FAO 2003) it has been proposed that governments consider the establishment of communications policies that—while supporting agricultural extension for rural development—also recognize the need for a broader “rural extension” service aimed at diffusing non-agricultural information and advice to rural people.

Private sector involvement in extension delivery is essential in most cases, although there is a continuing need for government involvement especially regarding pro-poor services. Questions of how to apportion responsibility for funding, delivery, management, and other concerns are either country specific or at best partially answered by the case studies.

There is an absolute need for knowledge in a fast-paced, rapidly changing world, and all available resources must be employed to compete in the twenty-first century. The private sector can play an

increasingly important role in rural knowledge systems, but total privatization is not feasible, even for commercial agriculture. The appropriate mix of public and private roles can best be determined through piloting and learning from experience. Government must be realistic about the limits of fully private extension (a caution also for donors). Nonetheless, including the private sector in extension systems is vital, and two strategies: (a) subsidizing farmers to contract with the private sector and (b) contracting with the private sector are already employed in help the private sector provide extension services. Because commercial firms provide many services directly, opportunities for public-private partnerships or public support for selected services from private firms is well worth exploring. In short, the public sector holds the key to policy reform directives requiring new or revised public policy vision; that is, determinations to institute major structural and fiscal reform measures, which include involvement of the private sector. Only the public sector, (i.e., national governments) with the concerted help of their sub-governments, can assume these responsibilities.

Participation and demand-driven extension approaches are generally extolled in the case studies, though several note the problems related to the cost implications and management demands of such approaches. However, the various aspects of decentralization that may be involved are not always fully treated.

Participatory development is essential because it strengthens civil society and the economy by empowering groups, communities, and organizations to negotiate with institutions and bureaucracies; thus influencing public policy and providing a check on the power of government. It also tends to enhance the efficiency, effectiveness, and sustainability of development programs. A disadvantage is that participatory activities tend to be time-consuming and require strong interpersonal skills to conduct.

The needs and demands of farmers, especially food-deficit producers and communities, need to be strengthened through a wide variety of institutional interventions. If the poor are to benefit from agricultural extension, extension reform must promote local programs within the framework of a national integrated food security strategy that helps the poor enter society's mainstream. This is a moral and social obligation but also in the economic self-interest of government and a support to national development, while contributing to international progress. The ultimate goal is to attain that point where farmers take responsibility for programs and thereby create demand-driven development.

Case Study Findings

Although the 44 case studies highlight definite lessons of value to those considering extension reform, there is still need for a fair degree of caution. Whereas the reform initiatives have amassed substantial experience, most are still "islands of excellence" with little experience as part of a permanent national program. Questions remain as to how far public extension can go in broadening its mandate from agricultural technology to broader rural development issues. Quality control systems are weak, and many cases illustrate how dependent extension systems remain on "projects," largely donor-financed. For instance, although some cases (e.g., Honduras and Nepal) have made the project a useful management tool within the extension system, reliance of the overall system on project financing saps system sustainability. There is much in the case studies that augurs well for extension reform, but cautionary notes are in order. In general, the case studies support the following strategies and actions.

View extension within a wider rural development agenda. The emerging view of extension is not that of a service or system, but rather a knowledge and information support function for rural people. Because rural knowledge and information needs are so diverse, there are benefits from having a range of providers to deliver advice, technology innovations, and facilitation services. However, in many countries

agriculture and agricultural extension will remain the prime concern. The United States case study is one of several arguing for introducing a rural development agenda into the extension system to bring about changes in rural community processes and address non-farm needs.

Define an extension policy for a pluralistic system. The design of an extension policy begins with an inventory of the actors (i.e., who provides what to whom) and an assessment of the quality of the services rendered, before deciding on reform. Government must then identify the overall objectives for public sector involvement in extension and define the role and responsibilities expected of various service providers, and of public funding. Although it is important to have a strategy for a national extension system, this requires a country-led vision and political support independent of donor agendas, but in line with country-driven processes such as Poverty Reduction Strategy Paper programs and the New Economic Partnership for African Development. For example, Bangladesh has adopted a New Agricultural Extension Policy (1995-2010), whose goal is to partner with all extension providers—government agencies, NGOs, and trade organizations—to optimize the use of available resources and competencies of these different bodies to meet the diverse needs of farmers.

Make long-term commitments. New approaches will take many years to be fully institutionalized. Long-term commitments must be adopted within a widely shared vision and strategy at the various levels—international (as in the workshop), national, regional, and community. Denmark’s extension system evolved over more than 100 years; Trinidad and Tobago is still changing after more than ten years of reform; and Uganda’s extension development plan covers 25 years. Decentralization reforms require new capacities and necessitate a fairly long-term planning horizon. The private sector must also change its time frame if it is to successfully play its new role in extension reform.

Develop a stakeholder coordinating mechanism. It is important to establish some type of coordinating body for the various participants in extension to provide a common framework in which all actors can operate. However, coordination should not be so strict that it discourages competition and innovation. At a minimum, policies and mechanisms need to harmonize behavior and strategies, such as minimum levels for co-financing, prioritization, and area selection. Estonia and Bangladesh have extensive coordination systems for agricultural information services.

Build capacity of RPOs, the public sector, and service providers. Capacity building at all levels is critical, and funding for capacity building and institutional strengthening is a *sine qua non* for near-term and future development. However training, like everything else, must have clear objectives related to program achievement, and it must become more hands-on, involving participants in every aspect of the training. This requires program development that begins with assessment of employee or farmer needs, not merely training for training’s sake. Venezuela has introduced extension service reforms that highlight training as a major part of their program for contracting and decentralizing extension services.

Producer organizations represent a private sector institution whose extension training needs are diverse in that they are often responsible for the allocation and distribution of inputs, such as water, fertilizers, and credit among their members, as well as for the marketing of their products. Portugal currently engages a diversified supply of extension services, in which public extension is practically non-existent; the extension function is performed mainly by cooperatives, farmer associations, and private businesses, albeit in a more or less fragmented and dispersed fashion.

Be realistic about the limits of fully private extension (a caution especially for donors). The private sector will play an increasingly important role in rural knowledge systems, both through commercial enterprise extension programs (e.g., for sale of inputs or purchase of products) and through innovative

public-private partnerships. Still, total privatization is seldom feasible, even for commercial agriculture. The appropriate mix of public and private roles can only be determined through piloting and learning from experience. In general, the cases underscore three important government tasks in implementing extension privatization policies: (a) establishing and managing the appropriate economic environment for extension privatization, (b) establishing and managing effective privatization processes and procedures, and (c) developing adequate private sector management capability ensuring successful private sector extension operations. The cases provide illustrations of successful, and not so successful, initiatives aimed at promoting private sector involvement in extension.

In Ecuador, an effective extension system based on private extension agents now faces an uncertain future because of government change of policy. The for-profit private sector in Pakistan has concentrated on large farmers to the detriment of small farmers, and the case study dubs it less than successful. When developing private sector reform initiatives, the most apt slogan is, as the Pakistan case study puts it, *caveat emptor*. Contracting for extension administration and delivery is common in many case studies. In Honduras administration of a hillside project for small farmers involves contracting out to a Costa Rica-based organization, CATIE, which then supervises sub-contracts with private companies that work directly with farmers.

Focus public financing on the poor. Given the World Food Summit and subsequent manifestos and promises by countries worldwide, poverty reduction must be the focus of public funding whether it's provided by public employees or contracted out. In fact, given the emphasis on poverty reduction and the increasing knowledge intensity of rural income-generating activities operating in a globalizing economy, the role of public funding is likely to increase. Still, extension systems must tap new sources of public funding, given that the bulk of financing available for rural development now surpasses public agencies charged with agriculture, forestry, and environment. Uganda's decentralized extension reforms face significant challenges, not the least of which is dealing with AIDS, as well as poverty issues. Vietnam is an example where extension and policy for general economic development has exacerbated problems by pushing poor people off traditional lands.

Introduce some cost recovery. There is greater scope for cost-sharing and fee-for-service programs than is usually acknowledged. Reforms can encourage the valuing of information and knowledge services and fee-for-service mechanisms can foster gradual development of a market for knowledge services. Although more popular in developed than developing countries, private market-oriented services are the objective of many reforms. Two experiences in Africa such as Mali's cotton extension program and Niger's market-based irrigation program for smallholder farmers illustrate the strengths of a commercial approach. Denmark, Uruguay, Portugal, and South Africa also reflect the strengths of market-oriented extension approaches. Other developing countries, such as Egypt, have even opted to charge fees for certain participatory approaches. In Estonia and Brandenburg, Germany, farmers pay upward of 70 percent for extension services. Cost-sharing by farmer organizations is an important feature of reform in West Africa.

Decentralize administration of public funds. Extension services are increasingly a part of the decentralization and devolution agenda that engages local government units and grassroots organizations. This agenda facilitates access to broader rural development financing such as other rural development and fiscal transfer programs, local government financing, and user funding. However, investment is usually needed to enhance local government capacity to successfully decentralize extension programs.

In general, decentralized, demand-driven, and participatory programs tend to be more democratic in design and more successful in implementation. Involving producer organizations in extension activities is

an obvious means of engaging producers in programs that coincide with their own goals. In China, the central government's delegation of authority to the provincial, prefecture and county levels has been instrumental to the success of public sector reform. In India, decentralization initiatives are largely oriented to promoting user participation in local extension activities. Ghana transferred management and technical functions from the central extension administration to regional offices in the 1990s, and is an example of "deconcentration" or "incomplete" decentralization reform. This last example and that of Trinidad and Tobago highlight the difficulties of decentralizing public extension programs.

Provide continuing technical support. Access to timely information and continuous updating of the knowledge and skills of field-level extension staff, both public and private, are of the highest importance. Research-extension linkages remain important, though often frustratingly problematic. However, the strong consensus of the Washington workshop was that formal research programs are important, but are only one source of such innovation and information for extension programs, because extension's agenda is broader than technology transfer. Quality extension services require technical, training, and communications support, often best obtained from specialized supporting institutions (e.g., research institutes). Alternatively, more innovation and knowledge can be locally developed, as in an indigenous agricultural research initiative in Latin America, where Local Agricultural Research Committees (known by the Spanish acronym, CIAL) promote innovation through experiments carried out on behalf of their client groups. CIALs foster rural innovation by sharing the knowledge, experience, and benefits that come from experimentation while simultaneously sharing the inherent risks and costs, and are considered a complement to Farmer Field Schools (FFS). In the future, innovative links with both public and private technical support agencies will likely be key to enhancing value of extension services to clients.

Develop a strong system for M&E from the beginning. Extension providers whether public, private, or civic society non-governmental organizations need systems that will assess extension outcomes and feed this information back to policy and coordination units. In Uganda farmers are involved in the award of contracts for extension services and for monitoring and evaluating performance. Evaluations have played an important role in the development of extension in Chile. Although, a major problem cited was 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. A good example of M&E is the Technical Implementing Unit of the Ecuador program, which measures the performance of the operators and the groups of beneficiaries and assesses progress towards achieving the Technology Transfer component of the program goals. Venezuela highlights the need to assess the effects of and linkages with broader political, economic, and institutional variables on program design, implementation, and evaluation. This is suggestive of the need to coordinate the mutual interests of the agricultural research, extension, and higher education systems into a "knowledge-system triangle."

Experiment with different extension approaches to strengthen reforms. Overall, the cases suggest that experimentation is essential, that a mentality to experiment with extension approaches contributes to finding the right reform for the right situation. Situations are specific, and situational analyses and needs assessments are key to clear thinking about what reform measures might best be instituted. However, the trap of discovering something that works in one place and concluding that it will work in all places is a constant threat to critical thinking. Although experience across the various case studies shows that there is some convergence on principles, nevertheless each context is different. Meanwhile, new approaches are proliferating. Kenya and West Africa have successfully used grants for adult education, a problem-solving approach known as Farmer Field School (FFS), whereas the Philippines, Indonesia, and Egypt draw attention to the high costs associated with FFSs. The changing economic climate and increased specialization and differentiation among farmers in West Africa has promoted ongoing experiments in

providing management advice aimed at easing the integration of small-scale family farms into an open-market economy.

Challenges Ahead

Extension is expanding its scope of purpose, widening its institutional inclusiveness, and shifting greater authority to clientele and stakeholders. In addition to the strategies and actions highlighted above, governments face a number of ongoing, emerging, and capacity-related challenges. The extent to which these challenges are adequately met will depend on the pressures of globalization, the state of a country's social and economic situation, and the political positions of individual governments, as well as the strength of its extension providers. These challenges will also inevitably be affected by the increasing privatization of research and extension and the industrialization of agriculture (Wolf 1998).

Ongoing Policy Challenges

Public sector involvement in the delivery of extension services has diminished, but central governments in low- and middle-income as well as some higher-income countries continue to fund extension-related services, albeit more often delivered by private sector entities. There is increasing concern for both agricultural development and broad-based, other-than-agriculture entrepreneurial development in rural areas (Alex et al. 2002). Extension systems are being called upon to address a number of broad-based problems.

Food security. The focus of extension in most developing countries will likely continue to be concentrated on crop and animal production, as well as forestry and fisheries production, and the development of fiber and pharmaceuticals. However, developing countries in particular, must at the same time confront especially grave problems regarding food insecurity and severe poverty. The World Bank justifies its support for public institutions such as research and extension on the basis of the public good nature of these institutions (Purcell and Anderson 1997). The International Food Policy Research Institute (IFPRI) argues that to reduce poverty and food insecurity, "agricultural research and policy should focus on improving agricultural productivity, particularly of small-scale farmers in low-income countries" (Pinstrup-Anderson, Pandya-Lorch and Rosegrant 1997). However, ensuring food security is more complex than simply producing more food, and governments must address issues of generating employment and ensuring that food is healthy and nutritious. In this context, extension for food security can and does mean different things to different countries.

A clean environment. In market-oriented schemes, extension tends to be strictly an agricultural advisory service for producers who can afford to pay for the service, usually on a contractual or fee-based basis. However, at the same time many countries such as The Netherlands, have initiated national policy that promotes efforts that go beyond production interests. The government is fostering environmental practices through a combination of better-adapted technology, high-quality extension services, supportive legislation and regulations concerning pesticide and nutrient use, and economic incentives that mobilize farmers for meaningful change (Proost and Matteson 1997). The U.K. case study points out the need for government to assist farmers with understanding and responding pragmatically to environmental management laws, and assisting with practices that serve in maintaining a clean environment.

Food quality and related issues. Globally extension issues have changed over time and are continually changing. In addition to agricultural production knowledge transfer, extension leaders need to be engaged in the enhancement of product quality and the promotion of food safety. They will need to provide

impartial evaluation of new products and services, and validate and localize new technology. Improvements in food quality and safety are high priorities for enhancing competitiveness and access to globalized markets. The public sector must play an important role here, as it is generally considered to be a source for unbiased information.⁷

Social equity. To base food security of a large part of the world's population on liberalized trade and a free-market system is a high-risk social experiment. Fee-based agricultural information transfer systems tend to be biased toward larger, wealthier farm enterprises. Commercial agencies do not provide services on an equal access basis, but rather on clients whose profits can be maximized and on areas with fertile soils and satisfactory infrastructure. This tendency reinforces existing patterns of inequality in the distribution of rural incomes and services, especially among women. The public sector has a special role to perform in small farm development and indeed, this role when performed successfully can be as important for economic development as for social equity (Bennett 1994; Cary 1998; Rivera 1997; Rivera and Cary 1997, Swanson 1997).

Sustainable agriculture. Agricultural sustainability is a major concern. National public sector support is considered increasingly critical for safeguarding sustainable agriculture as well as ensuring clean environments (Altieri 1990). Encouraging farmers to adopt new practices for sustainable agriculture is a challenge that is more likely to be promoted by the public sector than the private sector. Extension programs can advance integrated management systems (IMS) that encourage low-intensity farm production systems; integrated pest management; crop rotation designed to improve crop health, decrease erosion and fix nitrogen in the soil; and support tillage and planting practices that reduce soil erosion and help control weeds. Extension can support best management practices that help return natural resources to a less polluted state.

New and Emerging Challenges

New and emerging priorities promise to further shape extension in the future. High-quality public sector agricultural extension services will continually be incorporating new messages into programs for producers, targeting those public-good issues that are not being covered by the private sector. Some have already been mentioned: product quality enhancement and food safety, organizational development for collective action, addressing environmental problems, resource management, impartial evaluation of new products and services, and validating and localizing new technology. However, new clients, approaches, and issues are already emerging and are likely to become more important with time.

The private sector. The private sector is an important actor in rural extension systems, however, it is also a client of extension. As the world rushes toward extension reforms, and especially privatization, food and agricultural businesses should have cause for concern, because private sector companies continually use the expertise of national government, including extension expertise. In developed countries, companies consult government seed agencies when cultivating and naming seed varieties, use nationally gathered data when developing products, and seek to develop joint research and extension ventures in various

⁷Public sector extension is considered an unbiased, preferred source of information (Finsterbusch and Rivera 1987). Wolf (1998:166) confirms this, noting that farmers often triangulate to arrive at a decision by gathering as many as three opinions (e.g., dealer, independent consultant, and extension service). Public sector extension also has the reputation among consumers of being unbiased, committed to healthy nutrition and safe procedures. So much so that supermarkets in New York City advertise Cornell Cooperative Extension's endorsement that they follow proper food-safety measures.

sectors of crop and animal research. Private sector company representatives often call upon research and extension agents to present materials on new agricultural developments. Research and technology-transfer linkages between the public and the private sector have been shown to be important in all countries.

Other extension clients. New extension clients are coming onto the scene. Extension's audience in developed countries, such as the United States, is changing away from agricultural producers (Kalaitzandonakes and Bullock 1998). Land Grant universities are moving away from their traditional farmer clientele and gradually toward less traditional clients such as agribusiness decisionmakers, intermediaries and consultants, integrators, government bureaucrats, and regulators. Family issues and non-farm employment will require new approaches and increased resources.

Urban agriculture. A trend toward urban extension reflects the world's rapid urbanization. In Latin America, for instance, urbanization (74 percent in 1998) will reach 83 percent of the population by the year 2020 (Sanchez-Griñan 1998). This process is already affecting socioeconomic and demographic changes that in turn are affecting food and nutrition. The same process is apparent in Asia and Africa, as well as in North America and western Europe. There is substantial urban and peri-urban agriculture, and although this will not be the only issue for urban extension, it is becoming important in countries such as China. Food security, employability of youth in the food industry, environmentally sound practices by small urban businesses, as well as other food and agriculturally related programs, are likely to demand the attention of governments that have dismantled extension programs.

Global markets and diversification. Diversification to new high-value crops and nontraditional products is becoming a common strategy for increasing agricultural small farmer incomes. Globalization offers opportunities to enter lucrative markets for high-value horticultural, livestock, and specialty products. These are not without risk, and extension and information services must help producers increase productivity of new products, enhance quality, and introduce new risk management strategies. Competitive pressure from global markets puts a premium on efficient production and marketing, whereas market demands require high-quality products. The "super-marketization" of food products from developing countries places new demands on extension and information systems to advise and support producers and market intermediaries.

System Management and Leadership Challenges

Management. Government adoption of a reform agenda for extension has critical implications for extension management. Management will need to (a) re-prioritize agricultural extension and information services as part of a national multi-sectoral integrated food security network; (b) plan and budget for pluralizing and strengthening agricultural extension and communication systems by allocating funds for institutional and management re-organization (including organizational development training, integrated monitoring, and evaluation systems), and human resource development at all levels; and (c) review and respond to the training needs of those agencies and organizations willing to cooperate in responding more keenly to the food security challenge.

A national policy reform agenda will necessarily involve extension management in establishing alliances with all sectors in an effort to develop pluralistic programs for food security and income generation among the rural poor. Rural agricultural extension communication strategies will need to be organized to respond to issues that include but go beyond those of production and access to food, thereby requiring linkages and collaborative efforts with other organizations, public and private, concerned with other, related basic human needs such as health, sanitation, and employment. Management will need to involve

both public and private sectors in closer cooperation in a pluralistic institutional framework that ensures that programs are planned, implemented, and evaluated jointly by multi-sectoral service providers in cooperation with farmers.

Leadership. Organizations work the way they do because of the way people work in the organizations, and often enough the way they work is a reflection of their leadership (Heaver 1982). Leaders must show personal commitment to the organization's vision and provide conceptual clarification as to the direction of the organization such as: Where are we going and why? To be truly effective, leadership involves all leaders, not only executive leaders, but networkers (i.e., front-line workers, in-house consultants, trainers, and professional staff who spread ideas throughout and outside the organization) and local line leaders (i.e., branch managers, project team leaders, and other front-line performers). All have essential roles in bringing about development (Senge 1990). Additionally, a new kind of teamwork is needed among rural development organizations, that will bring specialists together from across disciplines as well as from various sectors knowledgeable about the agricultural process which includes marketing and price relatives.

Capacity enhancement. Reform of extension necessarily entails capacity building, in management negotiations and the establishment of national and district work plans and budgets in line with a new, pluralistic extension strategy, as well as with producers and communities. Pluralistic communication systems will be needed to operate in this larger arena. Capacity building and institutional strengthening is needed to widen the pool of qualified service providers and ensure strong links with, and modernization of, the various components of the formal and non-formal agricultural education system. Although costly at first, capacity building at all levels and for all providers is critical.

Conclusion

Extension reform is in flux, but moving from innovation to execution. Like other historically considered public goods, it is increasingly being decentralized and privatized in different approaches and to different degrees. The immediate challenge facing governments is to reform extension in ways that increase client-oriented services, and at the same time respond to continually changing social goals and economic pressures. Reforms are moving extension in the direction of institutionally pluralistic rural knowledge and innovation networks, but in most cases are not conceived with a clear understanding of the broader implications of such a system.

For those governments that have not undertaken extension reform, the challenges are establishing a strategic vision; building commitment within the public sector (not only in ministries of agriculture but also in ministries of finance as well as with stakeholders throughout the system); identify local change managers, and maintain realistic expectations of what can be accomplished in given periods of time.

Reform requires analysis of current performance of extension activities so as to determine the system's strengths and weaknesses, and is the first step toward establishing a strategic vision of the reform measures that need to be taken. Reform must be politically desirable, feasible, and sustainable over time. Key stakeholders must be convinced that the reform is really needed and that the changes planned are desirable and feasible. In most cases, management "champions" as well as local champions of the reform are needed to promote the process, including providing leadership to the development of a strategic vision and the building of agency and local commitment. Certainly, the reform process will succeed only under favorable conditions that include widespread acceptance by officials and other stakeholders, a process that generally takes time to develop. In this latter regard, organizational reform will likely require

participatory consensus building established by way of workshops and consultations, as well as the enlistment of local change agents to lead the effort and develop ownership among stakeholders.

For those governments already engaged in the process of reform, the task ahead demands further attention to the several findings and challenges already listed and discussed in this compilation of cases studies. An expanded vision of extension means developing services in a pluralistic partnership that responds to the needs of both agricultural and rural development. Governments have an especially important responsibility for tackling the problems of gender inequality, food insecurity and lack of income generation in rural sectors.

As the impetus toward extension system reform continues, international leaders and national policymakers responsible for directing extension are likely to find themselves called on to review and reconsider extension's role in a host of issues. These issues are: the development of rural economies, the advancement of social equity, and the protection of the environment, as well as in the production of agricultural goods. Although agricultural development will continue to occupy a leading place in extension's emerging pluralistic, demand-driven policy agenda, new challenges also promise a more inclusive view of extension's clientele and tasks in the future.

References

- Alex, G. D. Nielson, and D. Byerlee. 2002. *Agricultural Extension Investments: Future Options for Rural Development*. Washington, DC: The World Bank.
- Altieri, M. A. 1990. *Agroecology and Rural Development in Latin America*. (video). Albany, CA: Division of Biological Control, University of California, Berkeley.
- Bennett, C; 1994. "Rationale for Public Funding of Agricultural Extension Programs; Redressing Market Failure." Revision of Paper Presented at Australia Pacific Extension Conference, October 1993. Queensland, AU. Also available: Washington, DC: USDA.
- Bonnen, J. T., and D. B. Schweikhardt. 1998. "The Future of U.S. Agricultural Policy: Reflections on Disappearance of the "Farm Problem." *Review of Agricultural Economics*, 20:1,2-36.
- Cary, J. 1998. "Issues in Public and Private Technology Transfer: The Cases of Australia and New Zealand." In S. A. Wolf (ed.), *Privatization of Information and Agricultural Industrialization*. Boca Raton, FL: CRC Press
- Crowder, L., V. and J. Anderson. 1997. "Linking Research, Extension and Education: Why is the Problem So Persistent and Pervasive? *European Journal of Agricultural Education and Extension*, 3:4.
- Crowder, L. V., W. I. Lindley, and N. Doron, 1997. *Agricultural Education for Sustainable Rural Development*. Rome: FAO/SARD.
- Douthwaite, B. 2002. *Enabling Innovation: A Practical Guide to Understanding and Fostering Technological Change*. London and New York: ZED Books.
- Echeverría, R. 1998. *Elementos Estratégicos para la Reducción de la Pobreza Rural en América Latina y el Caribe*. Washington, DC: Inter-American Development Bank.
- Eicher, C. K. 2001. Africa's Unfinished Business: Building Sustainable Agricultural Research Systems. Staff Paper 20001-10. East Lansing, MI: Michigan State University. Department of Agricultural Economics.

- Finsterbusch, K., and W. M. Rivera. 1987. "The Role of the Montgomery County Cooperative Extension Service in Providing Information to Farmers and Other Users." Proceedings, Lifelong Learning Research Conference, Feb. 1987, 65-68.
- Heaver, R. 1982. "Bureaucratic Politics and Incentives in the Management of Rural Development." Staff Working Paper 537. Washington, DC: The World Bank.37.
- Kalaitzandonakes, N., and J. B. Bullock. 1998. "Technology and Information Transfer in U.S. Agriculture: The Role of Land Grant Universities." In S. A. Wolf (ed.), *Privatization of Information and Agricultural Industrialization*. Boca Raton, FL: CRC Press.
- Kaimowitz, D. (ed.). 1990. *Making the Link: Agricultural Research and Technology Transfer in Developing Countries* (pp. 197-226). Boulder: Westview Press.
- OECD. 1989. *Survey on Effects and Consequences of Different Forms of Funding Agricultural services*. Paris: OECD doc. AGR/REE 89, 7.
- OECD. 1992. "Current Status of Different Forms of Funding Agricultural Advisory Services in OECD Countries." Paris: OECD doc. AGR/REE (92) 20.
- Pinstrup-Anderson, P., R. Pandya-Lorch, and M. W. Rosegrant. 1997. *The World Food Situation*. Washington, DC: IFPRI.
- Proost, J., and P. Matteson. 1997. "Integrated Farming in the Netherlands: Flirtation or Solid Change?" *Outlook on Agriculture* 26(2): 87-94.
- Purcell, D. L., and J. R. Anderson.. 1997. *Agricultural Extension and Research: Achievements and Problems in National Systems*. Washington, DC: The World Bank.
- Rivera, W. M. 1997. "Confronting the Global Market: Public Sector Extension Reconsidered." *Proceedings on The Current Situation in and the Outlook for the Technology Transfer, Technical Assistance and Agricultural Extension Complex*. San José, Costa Rica: IICA.
- Rivera, W. M. 1998. "An Institutional Variant in Extension: Rural Business Advisory Services in Uzbekistan." *Journal of International Agricultural and Extension Education*, Fall.
- Rivera, W. M. and J. W. Cary. 1997. "Privatizing Agricultural Extension." In *Improving Agricultural Extension: A Reference Manual*. Rome: FAO.
- Rivera, W. M., and M. K. Qamar. 2003. *Agricultural Extension, Rural Development and the Food Security Challenge*. Rome: Food and Agriculture Organization, Extension, Education and Communication Service (SDRE).
- Rivera, W. M., and W. Zijp. 2002. *Contracting for Agricultural Extension: International Case Studies and Emerging Practices*. Wallingford, U.K: CABI.
- Sanchez-Griñan, M .I. 1998. "Seguridad Alimentaria y Estrategia Sociales. 2020." Discussion Paper No. 23. Washington, DC: IFPRI.
- Senge, P. 1990. *The Fifth Discipline*. New York: Doubleday.
- Swanson, B. E. 1997. *Changing Paradigms in Technology Assessment and Transfer*. University of Illinois, Urbana, IL: INTERPAKS.
- U.S. Department of Agriculture. 1996. "Cooperative State Research, Education and Extension Service." *Urban Extension: A National Agenda*. Washington, DC: USDA.

Wolf, S. (ed.). 1998. *Privatization of Information and Agricultural Industrialization*. Boca Raton, Florida: CRC Press.

World Bank. 2003. "Summary of Workshop on Extension and Rural Development: A Convergence of Views on Institutional Approaches?" Washington, DC: The World Bank.