The World Bank

**Agriculture and Rural Development Discussion Paper 11**
**Extension Reform for Rural Development**

# Volume 4. Revitalization Within Public Sector Services

*Case Studies of International Initiatives*

*William Rivera*
*Gary Alex (editors)*


First printing or web posting: 2004

1818 H Street, NW
Washington, DC 20433
Telephone 202-473-1000
Internet www.worldbank.org
E-mail ard@worldbank.org



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.



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 5. National Strategy and Reform Process: Case Studies of International Initiatives

# Contents



**List of Tables**



**List of Figures**

# 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 Currle, Andrew P. Davidson, Edmond Dembele, Wilfredo Diaz, Vernon Douglas, Boru Douthewaite, Kamal Dow, Carl K. Eicher, Martin J. Eweg, Guy Faure, Gershon Feder, Gerd Fleishcher, E. Friis-Hansen, Chris Garforth, Daniel J. Gustafson, Andy Hall, James C. Hanson, M. Hassanullah, Kirsten von der Heiden, Johann Hesse, Volker Hoffmann, Subrimaniam Janakiram, Andrew Kidd, Paul Kleene, Hanna Kreen, Jorge Lainez, Clive Lightfoot, Eduardo Lindarte, Ülar Loolaid, George R. McDowell, F. Maganga, Rinku Murgai, Uwe Jens Nagel, Silim Nahdy, Hope Neighbor, Gana Pati Ojha, J.R. Okoth, Hugo Ortega, Michelle E. Owens, Fernando Pereira, Norman Bentley Piccioni, Donald L. Plucknett, Carlos Arturo Quiros, Jaime Quizon, José Ignacio Roa, Miguel Saviroff, Heribert Schmitz, Fabio Maria Santucci, Joseph Seepersad, Daniel Sellen, Brent M. Simpson, James Smyle, C. Sokoni, Rasheed Sulaiman V, Burton Swanson, Tek Bahadur Thapa, Josef Toledano, Hermann Waibel, Gerd Walter-Echols, Joshua Walton, Trevor J. Webb, Feng Yan, and Jean Sibiri Zoundi. A note on the author(s) of the case studies appears at the end of each chapter.

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

*William Rivera and Gary Alex*

# Introduction to Revitalization Within Public Sector Services

Marie-Helene Collion

Public sector extension services have come under increasing pressure to reform in the face of sometimes dramatic changes. Listed below, are some of the changes that have affected public sector extension services.

- The state financial crises that lead to a sharp decrease in overall public investments, leading to pressure to downsize and consider more cost-efficient extension methods away from the labor intensive, Train and Visit (T&V) management type approaches.
- The increasing criticisms of poor performance of public services extension such as (a) their lack of accountability to clients; (b) the lack of relevance and quality of their programs, due to poorly trained extension agents; (c) their limited coverage, in terms of area and type of clients, as they insufficiently address the needs of the poor, women farmers, and farmers in disadvantaged areas; and (d) their lack of sustainability.
- The emergence of other actors and service providers that can disseminate agricultural knowledge and information; in particular, producer organizations, NGOs, and private sector.
- The political forces linked to democratization, liberalization, and decentralization which in conjunction with financial constraints and emerging new actors, leads to redefining the role of public services and rethinking extension methods away from top-down, supply-driven approaches.
- The revolution in information and communication technologies which provides new vehicles for supplying information.
- The changes in agriculture and, therefore, in the information needs of farmers. Extension has to embrace a broadened mandate such as information on marketing. There is also growing public concern about environmental conservation and poverty reduction, which adds to the extension mandate.

The case studies in this section illustrate one or several aspects of the ways in which public sector services responded to these pressures.

## Public Services Adaptation

### *Partnerships with Other Actors and Service Providers*

A number of cases illustrate the fact that public services, recognizing that other actors can provide certain types of extension services more efficiently and more effectively than public sector agencies, promoted some form of partnership with them. Different service providers can be associated with public services depending upon the domain or type of users targeted, thereby complementing public extension services in areas where these service providers are more efficient than public services. For example, for the use of inputs commercial input dealers can provide advisory services more efficiently whenever agriculture is a profitable enterprise. On the other hand, NGOs have proven to offer good services to poor farmers or

farmers in disadvantaged areas, or have been very effective in mobilizing farmers to form action-groups for collective purposes, such as environmental conservation. Rural producer organizations (RPOs) have also been associated in the delivery of services, especially in domains where developing a supply-to-market chain is key for farmers to increase their agricultural incomes. NGOs, RPOs, and the private sector, in general, can be more flexible in the management of their staff than the public sector, providing incentives for quality work and responsiveness to users.

Though the public sector intervenes less in delivering front line extension thanks to these partnerships, public funding for extension is still crucial to provide public goods, albeit through private service delivery. Indeed, partnerships usually imply a separation of funding from delivery of extension services, either (a) public finance/private delivery, often referred to as "contracting-out" or (b) private finance or public delivery, in some cases referred to as "contracting-in" when NGOs contract with the public sector for use of selected extension agents.

The **Australian Landcare Program** presents an interesting case of partnership between the State, which provides funds, and voluntary community groups that implement activities to prevent land and water degradation. Voluntary community groups' proposals for land and water conservation are selected and funded by way of institutional mechanisms at state and regional levels. Public funds are used to employ landcare facilitators and coordinators to provide support to voluntary community groups. This is a case of "contracting-out" extension as mentioned above.

**In Bangladesh, the Department of Agricultural Extension** recognized the opportunity created by the emergence of non-government development organizations and agribusiness enterprises to replace some public extension services by partnership programs involving the three actors: public, agribusiness and NGOs in order to meet the diverse needs of farmers. To facilitate the design of partnership programs, a hierarchy of committees was established from the *upazila* (sub-district) to the national levels. A Partnership Initiative Fund (approximately US million $ 22.6) was established to finance the collaborative programs involving various combinations of public services, NGO's and private sector. This is another case of "contracting-out."

**In Nepal,** local governments, through their Village Development Committees and District Development Committees are contributing funds on a matching grant basis for certain extension activities. **In Russia**, a pluralistic knowledge-based rural extension system was designed, using multimedia to disseminate information and knowledge from multiple sources to multiple users encouraging the participation of diverse service providers (local and international agricultural research institutes, universities, input suppliers, producer organizations, water-user associations, and agricultural departments) through contractual arrangements.

The **Sasakawa Africa Association,** an international NGO, implements the Sasakawa Global 2000 Extension Program through a partnership with public services and input dealers. Under this partnership, public service extension agents work with the NGO to establish demonstration plots. This is a case of extension being "contracted-in" from the point of view of public services.

### *Changing Public Service Extension Methods*

The case studies also illustrate the departure from the traditional T&V extension method (technology transfer, supply-driven, top/down) toward extension methods that are bottom-up, participatory, and demand-driven In Bangladesh, Farmers Information Needs Assessment and Problem Census methodologies were introduced, to provide an input into annual extension program planning. Different

extension methods, adapted to different target groups have been piloted in an effort to improve cost-effectiveness of extension approaches. In Nepal, a programming-by-objective method was introduced to define individual work programs, thus making extension-agents accountable to farmers and allow for more effective district level monitoring and evaluation. This programming by objective clearly links extension agents' activities to results in farmers' fields. The Sasakawa Global 2000 program's special strength is its action-oriented approach, emphasizing extensive farmer-managed demonstrations in farmers' fields, close links with adaptive research which provides effective and well-tested improved technologies, and involvement of input dealers, which ensures timely input access.

### *Decentralization*

Another major aspect of the extension reforms is the decentralization of the services and the linkages established with local governments. The rationale is to (a) elaborate extension programs at a level where farmers' needs can be better apprehended and thus come up with programs that are more responsive to farmers' needs; (b) allow for mechanisms to ensure accountability to farmers; and (c) attract local government funding to increase financial sustainability. The Australian Landcare Program is fully decentralized in its implementation. In Bangladesh, extension programming is taking place at the *upazila* (sub-district) level. To this effect, *upazila* planning workshops and *upazila* Agricultural Extension Committees were introduced. Nepal also introduced decentralization. Extension programs are elaborated, and resources are allocated at the district level. In Nepal, the next step in the reforms is to devolve responsibility for approving extension activities to local government through the District Development Committee.

## Public Sector's Role in Policymaking

Though public sector agencies are less involved in the actual delivery of extension, they have a major role to play in providing a national vision and strategy as highlighted, both in the Australian Landcare Program and in the Bangladesh case. In Bangladesh, the Department of Agricultural Extension elaborated a New Agricultural Extension Policy in 1999 that provides a framework for the various actors to complement and reinforce their extension activities. The Department of Agricultural Extension is increasingly working as an umbrella organization, providing technical support and linkages among service providers. The strategic planning process is now institutionalized with the revision of the strategy in 2001.

## Broadened Agenda for Extension

With changing farmers' needs regarding agricultural information as well as increased concerns for poverty reduction and environmental conservation, the extension mandate is broadening. The focus is changing from a narrow agricultural mandate to a broad rural development one, recognizing that agriculture alone may not be the best or only way to improve rural people's livelihood.

Several cases in this section illustrate the broader mandate. The United States extension system, based on the Land Grant Colleges and State Universities was established primarily for agriculture. The author claims the system is in crisis, because the portfolio is too restricted to agriculture. However, attempts to broaden the mandate were made as early as 1972, with the Rural Development Act that established four rural development research and extension centers. However, only one state, Wisconsin, was able to make rural development part of its agenda on a sustainable basis with 20% of the funding earmarked for it. The

main opposition to the broadened agenda comes from farmers who do not want to see resources diverted away from agriculture.

The Australian Landcare Program represents a successful case of public service broadening its mandate to address environmental issues. Natural resources management requires drawing on agricultural science and technology, but even more so on sociological skills to guide changes in attitude and promote collective action. Public extension agents do not necessarily have these skills, but the public services were able to harness these skills through their partnership with voluntary community groups. In addition, the clientele for natural resource management is diverse and location-specific, often outside the farming community. Again, the involvement of voluntary community groups at the local level has been key to the success of the Landcare Program.

The Bangladesh and Nepal studies also call for broader services, aimed at more marketing and group formation efforts.

### *Capacity-building*

The cases also emphasize capacity building of extension staff as part of the reform process, thus addressing one of the recurrently highlighted weaknesses of public extension services. Capacity building is required not only for technical matters, but for extension agents to master the new extension methodologies, especially the participatory and demand-driven methods, as well as training for the broaden extension agenda mentioned above.

Mastering the training program may be difficult as the Bangladesh case illustrates. Training appears to have been essential to equip extension staff with new professional tools and techniques, but resulted in a capacity gap on the part of the supervisors to support front-line extension staff.

### *Information and Communication Technologies*

New information and communication technologies have the power to revolutionize extension systems and the way public extension services work. In the case of Russia, a multiple mass-media system consisting of a range of tools (e.g., printed materials such as newsletters, telephone, radio, television, video and computer networks) were used to support an evolving, pluralistic knowledge-based rural information system serving multiple end-users. The multiple users are the newly emerging farms of various types: public and private institutions, communities, agro-industries, and departments of agriculture. The author claims the system encourages the input from multiple providers of information (NGOs, producer organizations, national and international research institutes, and universities agri-business companies) through contractual arrangements, and also allows for the easy introduction of information beyond agriculture, targeting rural development.

### *Sustainability*

The lack of sustainability of the traditional public service extension has often been earmarked as a major issue. Sustainability can be achieved when the users of the services get organized to take on the activities themselves (or at least part of them). This is the case, for example, when extension services partner with rural producer organizations to disseminate information, thus using the RPOs' social networks. Public extension costs are thereby reduced, the coverage is greatly increased, and the sustainability of the actions is more likely in the event of a financial public crisis. The way public service extension can build on social networks is nicely illustrated in the case of the Australian Landcare Movement. The Movement is

successful, in part, because of its ability to capitalize on existing social capital[1] at the local level, complemented by the competence and coherence of the public services that are able to provide funding to support the voluntary community groups.

### *How to Implement Reforms*

Well-thought out introduction of reform is a key factor for successful implementation. The case studies of Bangladesh and Nepal highlight the ingredients for success. Lessons learnt from Bangladesh illustrate that introducing reforms sustainability in an old bureaucratic extension system is a slow and long process. It takes convincing of all stakeholders that the system needs change, in order to develop a positive attitude to change and build consensus and commitment for introducing reform measures. The process requires the support of reform "champions" within the system (i.e., a small and cohesive core of dedicated professionals). It also requires political commitment at a very high level. According to the authors, political commitment was achieved with the formal adoption of the New Agricultural Extension Policy (NEAP), elaborated by a high-level task force in which all stakeholders were represented to ensure legitimacy to the process. The NEAP provided supportive policy measures that institutionalize the changes. An extensive training program aimed at improving organizational and managerial capacity as well as broadening technical skills also supported the introduction of reforms. The reform implementation process was continuously monitored, using specific tools: a seasonal extension monitoring system; knowledge, attitudes and practice surveys; and technical auditing. Of great importance, the Ministry of Agriculture was committed to the reform process, regardless of government changes, thus providing the necessary continuity in direction.

### *Note on the Author*

Marie-Helene Collion is a Lead Agricultural Services Specialist in the World Bank, and is presently working on rural development and agricultural services operations in North Africa and the Middle East. She is a member of the Executive committee of the Sustainable Agricultural Systems, Knowledge and Institutions Thematic Group.

# Australia: Social Capital and Natural Resource Management – The Australian Landcare Movement

Trevor J. Webb and John Cary

Landcare is a unique approach to rural and regional development based upon a partnership between the community and the state in the context of natural resource management. Landcare has been successful in mobilizing local communities, in particular landholders, to work collaboratively in the treatment and prevention of land and water degradation on agricultural lands. This participatory approach, encouraging community self-reliance with limited but strategic government support, has become the dominant approach to rural and regional development in Australia. Landcare has been very successful in motivating

[1] *Social capital* is understood here as "*norms and networks that facilitate collective action for mutual benefit."*

and mobilizing landholders to treat land degradation as a serious issue with the existence of over 4,500 community landcare groups. More than one in three farms in Australia is represented in a community landcare group. One of the contributors to the success of landcare is its community-based, bottom-up approach to an issue that is of direct tangible concern to rural and regional communities. Landcare uses and enhances social capital existing within these rural and regional communities to effect positive environmental change. This paper presents a brief case study of landcare and its relationship to social capital in achieving community-defined goals.

## Landcare in Australia

While farmer involvement in land degradation dates back to the 1930s, landcare had its genesis in a range of initiatives during the 1980s. In particular an alliance between the apex farmers' organization, the National Farmers' Federation (NFF), and the apex non-government conservation organization, the Australian Conservation Foundation (ACF), promoted land degradation as Australia's biggest environmental problem. Building upon earlier Victorian community-based initiatives, the NFF-ACF alliance proposed a National Land Management Program that sought funding for the establishment of community landcare groups. The proposal found political support and the 1990s were declared the Decade of Landcare (Campbell 1994). Landcare grew during the 1990s to become a significant plank in Australia's rural environmental policy.

Landcare comprises three components: (a) bureaucratic landcare, which represents the state component of landcare; (b) community landcare, which represents the community members within local and regional groups; and (c) the broader landcare movement, which comprises the first two elements but is more encompassing (Cary and Webb 2001).

The National Landcare Program largely defines bureaucratic landcare, the state managed and funded component of landcare. It provides a national, strategic approach to natural resource management where funds are disbursed to community landcare groups by way of approval mechanisms at state government and regional levels. Community landcare represents the network of voluntary community groups that work together in their local regions to treat land degradation. There are more than 4,500 community landcare groups that represent more than one in every three Australian farms (Kemp and Alexander 2000). The landcare movement is a broad social movement that is not fully cohesive, but rather is a collection of individuals and groups who are generally concerned with land degradation and subscribe to an underlying landcare ethic (Cary and Webb 2001).

Community landcare groups engage in a range of activities to raise individual and community awareness and skills in recognizing, treating and preventing land and water degradation. Field days and meetings provide a forum for the exchange of information and ideas, particularly new information about land management techniques. Other activities, including tree planting and monitoring water and soil degradation, provide hands-on technical skills to participants. Groups also play an important role in raising local awareness of water and land degradation issues throughout the broader community. This typically involves links with non-farming communities, and with children and young adults through schools and the education system. Curtis and Lockwood (2000) suggest the most important roles for community landcare groups are to (a) mobilize participation; (b) initiate and support learning; (c) leverage resources to support local efforts; and (d) undertake on-ground works.

Community landcare members are distinct in terms of several socio-demographic and farm business characteristics when compared to nonmembers. Members generally have larger properties, more livestock

and crop areas and participate in more training activities. Importantly the beneficial impact of landcare extends beyond its direct membership of community landcare. For example although farm representation in community landcare groups was around 34 percent in 1995-96, 59 percent of broadacre[2] and dairy farmers had participated in at least one landcare training activity in the three years prior to June 1996 (Mues et al. 1998). Community landcare provides information, knowledge, and skills that are based upon local expertise and experience that others within the community may draw upon. Moreover, community landcare has been instrumental in developing and maintaining positive social norms and individual attitudes to the adoption of more sustainable farming practices. These norms and attitudes have generally been sustained within rural and regional Australia, even while general environmental concern has tended to decline in urban Australia (Australian Bureau of Statistics 2001; Barr and Brown 1994).

Whereas community landcare members are more likely than nonmembers to adopt sustainable farming practices, the differences are small and sometimes insignificant (Cary 1999; Curtis and Delacy 1996; Mues et al. 1998; Vanclay and Lawrence 1995). Barr and Cary (1999) argue that the capacity of landholders to adopt is limited. Financial returns to many Australian farmers are such that investment in agricultural innovations that do not have short to medium term production and profit advantages will not be adopted, regardless of their environmental benefits.

Land degradation issues are frequently characterized by broad diffuse impacts, often spatially and temporally distant from any likely causal event. Importantly the impacts affect both private and public concerns. The externalities relating to land degradation are used to justify state intervention in remedial investments, however, there are concerns over the level to which any private benefits gained should be publicly funded. Accordingly funds provided for on-ground works are based on formulae that go some way to incorporate the public and private benefit (Webb et al. 2001). For example, in fencing remnant vegetation, landholders may receive reimbursement for the fencing materials from the state and contribute their own labor and use of equipment.

Community landcare has been largely successful in highlighting the issues of land degradation and seeking to prevent further degradation and ameliorate existing problems. Landcare has bipartisan political support and widespread support among the rural and regional communities. The effectiveness of this movement is a consequence of its effective use of social capital in rural and regional Australia.

## Social Capital

Although numerous definitions and characterizations of social capital have been proffered within the social sciences in the past two decades (for reviews see Castle 2002; Portes 1998; Woolcock 1998) the characterization by Woolcock (1998) provides a useful framework for understanding the effectiveness of landcare in the context of rural and regional development. Woolcock (1998) defines *social capital* as the "norms and networks facilitating collective action for mutual benefit." He characterizes social capital in two dimensions: embeddedness and autonomy, and at two scales: the macro scale of the state and the micro scale of the community. This gives four distinct dimensions of social capital all of which are important in successful rural and regional development.

[2] *Broadacre* refers to farms engaged mainly in growing cereal grains, coarse grains, oilseed and pulses; running sheep or running cattle; or having combinations of livestock and grains.

Embeddedness at the micro-scale of the community refers to intra-community ties, which Woolcock labels "integration." Autonomy at the micro-scale refers to extra-community ties and has been labeled "linkage." For bottom-up development to be successful both integration within a community and linkage to those outside a community are required. A feature of community landcare is its strong local community focus, and this integration within the local community contributes to the success of the approach. Furthermore, through community landcare, members are able to gain access to information, knowledge and skills, not only from within the local community but also from the sources outside. These linkages are crucial for the flow of resources and ideas into the local community landcare groups and onto its members.

At the macro-scale social capital is also characterized by autonomy and embeddedness, though they take different forms. Embeddedness is referred to as "synergy" and relates to the relationships between the state (i.e., in the form of public officials) and society (i.e., citizens). An effective complementarity and cooperation is required between the state and civil society if development is to be enhanced (Woolcock 1998). Autonomy, labeled "integrity," at the macro-scale refers to the coherence, competence and capacity of the formal bureaucracies of the state (Woolcock 1998). In the context of rural and regional development, synergy and integrity relate to the role of the state in fostering, encouraging, and investing in development. Bureaucratic landcare's contribution to achieving outcomes will depend, in part, on the level and nature of its social capital that is its synergy and integrity.

Woolcock (1998) argues that it is not just the presence of social capital that is important to rural and regional development, but rather the combinations of the four social capitals he identifies. Thus high levels of integration may produce an effective collective, but, without strong linkage to those outside, the collective may fail to take advantage of external ideas and resources. Furthermore it is the optimization of these aspects of social capital that is important in rural and regional development rather than their maximization (Woolcock 1998).

## Landcare and Social Capital

Landcare is successful, in part, due to its ability to capitalize on existing social capital, and to further build the elements of social capital, within rural and regional communities. The degree of integration within communities is evidenced by high levels of farmer participation in community landcare groups, the growth in community groups, and the broad-based support for community landcare. Importantly, community landcare groups provide a forum for learning for their members. Working together towards common goals over time can assist in building a sense of shared values, identity and common purpose. Outcomes of social capital such as increased trust, new norms of behavior, and commitment to reciprocity may all be developed. Thus learning within groups is not restricted to technical skills and knowledge about land degradation.

Bureaucratic landcare provides funding to employ landcare facilitators and landcare coordinators. The coordinator is typically employed to assist groups to maintain their momentum and direction. The facilitator typically takes on a regional approach and seeks to encourage groups to become operational and self-reliant in their initial stages. However the distinction between the two types of positions has been blurred (Polkinghorne et al. 1998). These individuals play a key role in ensuring the effective and operational function of community landcare groups. They represent the relationship between the macro scale of the state and the micro scale of the community.

In addition to the integration within a community that is required for effective rural development, linkages to the outside are important. The facilitators and coordinators play an important role in providing these linkages to other resources and information sources. In some areas, community landcare groups have formed broader regional networks. This has further enhanced the ability of these community groups to gain access to financial and other resources (Sobels et al. 2001).

However, it should not be assumed that social capital would manifest itself in a positive manner. For example, Morrisey and Lawrence (1995) suggest that approximately 50 percent of central Queensland community landcare groups were created and dominated by landholders whose primary objective was for their own self-interest, often counteracting the participatory nature fostered by community landcare. These groups may operate with high levels of integration but lower levels of linkages.

Based on community volunteers, community landcare requires continual refreshment of its members to sustain its activities over time. This is one area where the social relations represented by integration within a community are very important. If new members are not able to take over tasks, the burden will continue to fall to the same individuals and may ultimately lead to burnout. Recent research exploring burnout in the context of landcare has found high levels of burn out in the form of reduced personal accomplishment (Byron and Curtis 2002). Higher levels of burnout were associated with those members who felt that the government expected landcare groups to do too much of the work of addressing land and water degradation. This highlights the fact that the state may have to play its important and complementary role in rural and regional development, if community efforts are to flourish.

## Conclusion

Through landcare, rural communities have become sensitized to land degradation and have built upon existing social capital to tackle significant aspects of land degradation. Community landcare has increased shared understandings and collaborative action in rural communities and compensated for the loss of other social networks because of rural decline. State and wider community support to develop macro elements of social capital have been essential to the success of the landcare phenomenon. As a consequence, landcare has been effective in gradually changing the social-norms surrounding farming practices, and thus more sustainable farming practices have become acceptable and more widely promoted.

## References


Australian Bureau of Statistics. 2001. *Environmental Issues: People's Views and Practices*. (Catalogue No. 4602.0). Canberra: ABS.

Barr, N. F., and M. Brown. 1994. "Landcare: Sustaining Public Opinion." Paper presented to the Australian Landcare Conference, September 1994. *Land care in the Balance*. Hobart.

Barr, N. F., and J. W. Cary. (1999). *Influencing Improved Natural Resource Management on Farms.* Canberra: Bureau of Rural Sciences.

Byron, I. and A. Curtis. 2002. "Landcare Participation and Outcomes in the Queensland *Murray*-Darling Basin." Johnstone Centre Report No. 166. Albury: Johnston Centre, Charles Sturt University.

Campbell, A. 1994. *Landcare: Communities Shaping the Land and the Future*. St Leonards: Allen and Unwin.

Cary, J. 1999. “Successful Soil and Landscape Conservation in Australia.” In T. L. Napier, S. M. Camboni, and J. Tvrdon (eds.), *Soil and Water Conservation Policies: Successes and Failures*. (pp. 658-671). Ankeny, Iowa: Soil and Water Conservation Society of America.

Cary, J., and T.J. Webb. 2001. “Landcare in Australia: Community Participation and Land Management.” *Journal of Soil and Water Conservation*, *56*(4): 274-278.

Castle, E. N. 2002. “Social Capital: An Interdisciplinary Concept.” *Rural Sociology*, *67*(3): 331-349.

Curtis, A., and M. Lockwood. 2000. “Landcare and Catchment Management in Australia: Lessons for State-sponsored Community Participation.” *Society and Natural Resources*, *13*, 61-73.

Curtis, A., and T. De Lacy. 1996. “Landcare in Australia: Does It Make a Difference?” *Journal of Environmental Management 46*(2): 119-137.

Kemp, A., and F. Alexander. 2000. “Landcare and Degradation: A Survey of Natural Resource Management.” In. *Australian Farm Surveys Report 2000*. Canberra: ABARE.

Morrisey, P., and G. Lawrence. 1995) “A Critical Aassessment of Landcare in a Region of Central Queensland.” In F. Vanclay (ed.), *With A Rural Focus.* Wagga Wagga: Centre for Rural Social Research.

Mues, C., L. Chapman, L., and R. Van Hilst. 1998. *Landcare Promoting Improved Land Management Practices on Australian Farms: A Survey of Landcare and Land Management Related Programs*. Canberra: ABARE.

Polkinghorne, L. N., R. G. Ashby, A. G. Blackburn; and C. Cheadle. 1998. *National Landcare Facilitator Project Annual Report 1998*. Geelong: Rural Resource Group Pty Ltd.

Portes, A. 1998. “Social Capital: Its Origins and Applications in Modern Sociology.” *Annual Review of Sociology 2:* 1-24.

Sobels, J., A. Curti,; and S. Lockie. 2001. “The Role of Landcare Group Networks in Rural Australia: Exploring the Contribution of Social Capital.” *Journal of Rural Studies* 17*:* 265-276.

Vanclay, F., and G. Lawrence. 1995. *The Environmental Imperative: Eco-social Concerns for Australian Agriculture*. Rockhampton: Central Queensland University Press.

Webb, T. J., J. Cary, and A. Campbell. 2002. Australia: “Contracting to Prevent Land Degradation: Landcare, a Success Story.” In W. M. Rivera and W. Zijp (eds.), *Contracting for Agricultural Extension: International Case Studies and Emerging Practices*. (pp.55-61). Wallingford, U.K.: CABI Publishing.

Woolcock, M. 1998. “Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework.” *Theory and Society 27*, 151-208.

## Note on the Authors

Trevor J. Webb, Social Sciences Program, Bureau of Rural Sciences, PO Box E11, Kingston, Act 2604, Australia.

John Cary, Integrated Food Value Chain, Victoria University, PO Box 14428, Melbourne City, MC 8001, Victoria, Australia.

# Bangladesh: Agricultural Extension Reform Initiatives

M. Hassanullah

The Department of Agriculture Extension (DAE) is the largest and the oldest public sector organization providing agricultural extension services to farmers in Bangladesh. The organization was established with a network of field extension agents—designated as Union Agricultural Assistants (UAAs)—extending down to the union level[3]. The Train and Visit (T&V) model was introduced and extended throughout the country with World Bank support from 1978 to 1992. Under this system, the country's 4,484 unions were divided into 12,000 blocks with approximately 1,000 farm families in each block and the Union Agricultural Assistants were re-designating as Block Supervisors (BSs).

## Country Context

### *Integrated Commodity Production Programs*

A formal agricultural extension system emerged in 1914 when the district demonstration farms were established, and District Agricultural Officers were appointed to educate the farmers about the use of innovations through practical demonstrations on the farms. Since then, the Department of Agricultural Extension (DAE) grew as a national public sector extension agency. Immediately after independence in 1971, the country plunged into chronic deficiencies of major agricultural commodities. To meet the crisis situation, integrated commodity production projects were developed for jute, sugarcane, tobacco, and horticulture. These programs were charged with a heavy burden of input and credit functions marginalizing the educational function of the extension system. These aggravated the problems of a multiplicity of agricultural extension services with involvement in input and credit functions. Even the Department of Agricultural Extension (DAE) adopted integrated production programs for rice, wheat, and minor crops parallel to the jute, sugarcane, horticulture, and tobacco programs to gain recognition and resources from the government and donor agencies.

### *Introduction of T&V System*

The World Bank developed the Training and Visit (T&V) model of extension work to rationalize the traditional system and to bring it back to the professional function of educating the farmers about the use of technologies for higher production and increased income. The T&V model was first experimentally introduced in the Rajshahi division in 1978, and was then expanded throughout the country in 1983. It integrated commodity-based extension organizations with the DAE; introduced unique standards for staffing and operational procedures for training and field visits (T&V); and increased the number of staff three-fold. Its unique and distinguishing features were rotational visits of a Block Supervisor to eight sub-blocks once in a fortnight, and transmission of information through Contact Farmers (CF) assuming that they, in turn, would transmit the same to ordinary farmers. The system gradually lost effectiveness and the support of stakeholders.

[3]Administratively, Bangladesh is divided into 6 divisions, 64 districts, 460 upazilas, 4,484 unions, and 59,990 mouzas.

### *Emergence of Development NGOs and Private Agribusiness Enterprises*

Meanwhile, two spectacular developments occurred having great significance to extension work in Bangladesh. First, a large number of non-government development organizations (NGDOs) emerged with local, regional or national operations in different sectors of agriculture. Philanthropists and charitable organizations originally established these organizations to assist people for relief and rehabilitation work immediately after independence. Over time many of them established sustained operations to carry out integrated agricultural development programs. Second, because of strong and continued privatization policies public sector commercial operations were abandoned or drastically reduced. Private sector agri-business enterprises emerged with commercial operations in inputs and services. As a part of their marketing strategy and to make better use of their inputs and services, many of them are now providing advice to farmers through local dealers, agents, and mass-media campaigns. A unique opportunity was created for situation of public, private, and NGO partnerships to replace some public sector extension services with programs for educating farmers.

### *Impetus for Reform*

Reforms became necessary to increase efficiency of the agricultural extension system by shifting its narrow, top-down approach to a wider, bottom-up system with greater beneficiary participation and by strengthening the institutional base needed to sustain the new system. In the T&V model, messages were passed down from research to contact farmers (about 10 percent of the clientele), who were expected to transmit the same to the rest of the clientele. Farmers' problems and needs were not directly and properly addressed. Thus, a reform initiative stemming from the need for changes in the T&V model of extension was formulated, envisioning fundamental changes in the extension system and in methods of extension delivery.

Against the backdrop of dwindling support for the T&V model and the emergence of NGOs and private agri-business, the government launched the Agricultural Support Services Project (ASSP) in 1992 with partial financing from the World Bank and the U.K. Departments for International Development. The project introduced some changes in the operational procedures of T&V and equipped the DAE with necessary logistics and trained manpower to carry out more comprehensive and effective agricultural extension work. Building on initial experiences, a comprehensive package of reform measures was introduced in 1995 under the second phase of ASSP and subsequently, from 1999 under the Agricultural Services Innovation and Reform Project (ASIRP).

## Formulation of Reform Measures

With the start of the ASSP Project in 1992 the change process began. For the first time the DAE adopted an officially declared mission statement: "The mission of the Department of Agricultural Extension is to provide efficient and effective need-based extension services to all categories of farmers, to enable them to optimize the use of their resources, in order to promote sustainable agricultural and socio-economic development." In pursuance of this mission the DAE formulated an approach that is termed the Revised Extension Approach (REA). Based on the basic principles of REA the DAE published a new extension manual in 1995. At that stage, the need for a national policy on agricultural extension became apparent.

During this period the Government of Bangladesh adopted a perspective agricultural development plan (July 1995 to June 2010) with a major objective of attaining self-sufficiency in food grains and other nutritionally enriched crops. One of the major strategies in obtaining this objective was providing appropriate technical and farm management advice and information to all farmers. This strategy focused

the need for developing a New Agricultural Extension Policy. A Task Force, formed under the chairmanship of the Secretary of Agriculture, developed a draft policy statement, which was eventually adopted as the New Agricultural Extension Policy (NAEP). The goal of the NAEP was “to encourage the various partners and agencies within the national agricultural extension system to provide efficient and effective services which complement and reinforce each other, in an effort to increase the efficiency and productivity of agriculture in Bangladesh." Elements of this strategy relate to working with all categories of farmers, efficiency of extension services, decentralization, demand-driven extension, working with groups, extension-research linkages, training of extension personnel, appropriate extension methods, integrated extension support, coordinated extension activities and ensuring integrated environmental support.

## Operationalizing Reforms

Incorporating the comprehensive reform program into the operations of the large and diverse extension services network in Bangladesh has not been easy. Considerable time will be necessary to complete the reforms.

## Key Reform Measures

In implementing the overall program of extension services innovation and reform, the ASSP Project and its successor, ASIRP project introduced the following key operational measures to promote adherence to NAEP policies by all extension service providers (ESPs).

*Working with all categories of farmers.* In pursuance of all-farmer policy to include the poor and disadvantaged groups in the extension clientele, a new planning format was introduced that segmented clients by socio-economic group and introduced a group-wise plan of work in order to account for time and resources spent for different categories of farmers.

*Decentralization.* Extension programming was decentralized at the upazila (sub-district) level. Annual Upazila Extension Plans are prepared using standard format with participation of all ESPs.

*Demand-driven extension.* Farmers Information Needs Assessment (FINA) and Problem Census (PC) methodologies were introduced to annually identify the farmers' information needs and problems before the annual extension program planning season. Findings are reviewed in coordinating committee meetings to formulate extension programs based on demand of farmers.

*Working with all kinds of groups.* Instead of developing its own sponsored groups of farmers, DAE opted for a policy of working with all types of available groups of farmers operating in an area.

*Extension-research linkages.* To strengthen research-extension linkages, a series of committees was introduced at the local, regional, and national levels (see below). These committees provide technical inputs to the planning process, bring various ESPs together, and enrich the various individual research and technology transfer programs.

*Multiple extension methods.* The extension program planning format provides scope for using multiple extension methods and, when necessary, reach different target groups with different types of technologies. Once included in the plan with budget provision, it becomes mandatory to carry-out the planned activities.

*Coordinated and integrated extension.* Introduction of coordination committees and partnerships among ESPs at various administrative levels has provided a mechanism of coordination for integrated extension work to meet diverse educational needs of the farmers.

*Institutional arrangement.* The system of implementation committees (described below) provides a strong institutional base for introduction and adoption of various reform measures.

*Continuous monitoring.* To ensure implementation of reform measures, a periodic monitoring system was introduced using tools, such as Seasonal Extension Monitoring System (SEMS), Knowledge, Attitudes, and Practice (KAP) surveys, and Technical Auditing (TA). An overall computerized MIS was also introduced.

## Implementation Coordinating Committees

The NAEP emphasizes partnership among extension service providers (ESPs), government organizations, NGOs, and trade organizations to optimize the use of available resources, expertise, strengths, and competencies of different organizations in order to meet diverse service needs of farmers. To facilitate partnerships, a hierarchy of committees was put into place at national, regional, district, and upazila (sub-district) levels as a part of NAEP implementation strategy. These committees were as follows:

- Extension Policy Implementation Coordination Committee (EPICC) representing all ESPs.
- A Consultative Committee representing donors and EPICC members.
- Agricultural Technical Committees (ATCs) representing all regional and district level officers of agriculture, livestock, forest and fisheries, water development board and senior scientific officers of NARS stationed in the region.
- National Agricultural Technical Coordination Committee (NATCC) representing all agricultural research institutes linking all ATCs operating at the district level.
- Research Institutes Coordination Committee representing all agricultural research institutes of NARS.
- DAE-NGO Liaison Committee.
- District Extension Planning Committee (DEPC) representing all district level agricultural offices.
- Upazila Planning Workshops, a forum of all DAE and extension partners to prepare annual upazila extension plan.
- Upazila Agricultural Extension Coordination Committee (UAECC), as a grass roots level committee for effective implementation of NAEP under the chairmanship of the Upazila Agricultural Officers.

## Second Phase Reform Measures Under ASIRP

In order to strengthen and sustain reforms introduced during the ASSP project from 1992 to 1999, a set of second phase reforms was introduced or piloted under the ASIRP Project (1999-2002).

*Strategic planning.* In accord with its mission statement, the DAE introduced a strategic planning process and prepared a first strategic plan in 1999. The strategic planning process was then institutionalized and work on a revised plan started in 2001.

*Partnership initiative fund.* A Partnership Initiative Fund (PIF) of Tk 1,136 million (approximately US$ 22.6 million) was established to finance partnership collaborative extension projects involving various

combinations of government organizations, NGOs, and private sector organizations at upazila, district and national levels to promote development of partnerships among these various ESPs.

*Piloting innovative extension approaches.* To further refine cost-effective extension approaches and implementation strategies, the DAE designed and piloted three integrated extension models in selected districts. The models, which are still under testing, include:

1. The **UAECC Strengthening Model**, which uses a "Local Situation Analysis" and comprehensive "Joint Rural Appraisal" carried out in meetings of the full UAECC. An "Issue Specific Working Group (ISWG)" under the UAECC then develops plans and strategies for implementing a needs-based program.
2. The **Specialist Cooperation Model** establishes mechanisms for cooperation between technical specialists located in upazila organizations and generalist extension agents from agencies with field staff presence who interface with farmers.
3. The **Local Government/Resource Center Model** develops local extension resource centers located in places where ESPs can obtain information for their work and their beneficiaries.

## Policy Reform Advocacy

One of the tools used in the reform process was intense policy advocacy at the highest echelon of the government. The primary focus of the advocacy was to assist the decision-makers formulate a package of policy measures supportive of the reforms. This was successful because the Ministry of Agriculture was involved in formulation of NAEP through a high-level task force that got approval of the policy and reforms from the Cabinet. This helped to ensure the highest level of legitimacy for reform measures, which have inter-ministerial implications and involvement.

A wide range of specialists and advisers were mobilized for providing advisory services( i.e., guidance and counseling) to the top and mid level professionals and administrators in formulating, piloting, adapting, and introducing the reform measures over a long period of time.

## Training of Stakeholders

Extensive training programs were conducted both at home and abroad to orient the large numbers of professional staff of the ESPs to understand reforms and learn and apply tools and techniques for effective extension work. The DAE has about 22,000 employees of which 2,500 are professional staff, 11,000 are Block Supervisors, and the balance are support staff at various levels in the administration. The DAE manages this workforce through a network comprised of a national headquarters, nine regional offices, 64 district offices and 468 upazila extension offices. A large-scale training program was required to meet diverse training requirements of this large number of staff. In its early stages, ASSP adopted a program of short- and long-term training to cover all staff. This aimed at improving organizational ability in management and administration and broadening the technological knowledge base.

When REA was formally adopted in 1995, training interventions concentrated on ensuring that the organization had the ability to implement the changes. The initial training to support national implementation of the REA consisted of nine core courses encompassing the major aspects of the extension system. These were supplemented by additional courses to develop management skills and to facilitate local staff training and team building by district and upazila leaders. The initial task was to teach theory and practice of the new approach to extension work as compared to the T&V system. Field-level

training necessary to implement the REA was delivered within the DAE training system and training skills of district and upazila officers were up-graded. The DAE's primary trainers for upazila officers were the district staff. Similarly, upazila staff were responsible for training the Block Supervisors. This reduced training costs and became sustainable in subsequent years.

Both in-country and overseas training of staff and educational activities for the farmers were further intensified under ASIRP. So far, 5,000 person-days of in-country training have been organized for the staff and 116 senior staff have trained abroad. Educational activities for farmers were as presented in Table 4.1.

**Table 4.1. Targets and Achievements of Educational Activities During AS1RP**

| *Activities* | *Target (1999-2003)* | *Achievement (to date)* |
|---|---|---|
| Demonstrations | 272,931 | 25,928 |
| Field Days | 217,924 | 85,600 |
| Chashi Rally | 913 | 677 |
| Folk media (songs and dramas) | 438 | 314 |
| Motivational tours | 72,880 | 63,480 |
| Agricultural fairs | 1,636 | 1,037 |
| Farmer training | 966,300 | 778,320 |

Source: DAE records

## Major Changes

Four major changes occurred in the Bangladesh extension system. First, it has changed from a supply-driven to a demand-driven orientation in identification, packaging, and offering services to the farmers. Second, it has introduced a system of government organization-NGO-private sector partnerships at all levels of operation as contrasted with a unilateral approach of offering different competing services to the same clientele. Partnerships have also provided the opportunity to address all the diverse service needs of farmers. Thirdly, it equipped the extension personnel with professional tools and techniques for performing the tasks of educating farmers more effectively. Fourthly, adoption of a publicly endorsed NAEP provided the legal framework to institutionalize changes in extension programs and relationships.

## Present Situation

The DAE is now better organized, equipped and capable of undertaking nationwide extension programs based on needs and demands of farmers. It is linked with research institutes and other extension service providers both at national and grassroots levels through the various coordination committees. Research institutes, governmental and nongovernmental extension service providers, trade organizations, and farmers are represented in all these coordination and management committees. Through annual planning exercises, ESPs can assess farmers' needs and organize partnerships for developing need-based programs to meet total needs of farm families. Much depends on the administrative leadership as to how and to what extent these systems and processes are adhered to in providing extension services. The NGOs have also equal access to technical know how of the DAE in providing extension services to their beneficiaries.

## Problems and Opportunities

The ESPs are diverse and managed with different perspectives, systems and procedures. With the adoptions of NAEP it is expected that all of them will adhere to the systems and procedures introduced. The system is now facing two major problems. Firstly, administratively government extension services are under different ministries. The different ministries still tend to work independently with little commitment to systems and processes adopted. Secondly, the ESPs are supported by a multitude of donor-assisted projects and programs and many prefer to work independently without adhering to the adopted NAEP. There is a need to promote the system until the systems and processes are fully institutionalized.

Bangladesh agriculture is slowly moving from subsistence to a commercial state of operation. Industrialists, traders, farmer groups, and associations, as well as a large number of farmers are increasingly investing in commercial agriculture. This has paved the way for privatization and commercialization of extension services, which will require the development of appropriate manpower, institutional and policy support to meet future needs of commercial agriculture.

## Impact of Reform

During the reform initiative, the DAE's main goals were to achieve food self-sufficiency, diversify crop production, and increase export of horticultural products. Many government and non-government organizations have contributed to these goals. It is difficult to attribute any success or failure exclusively to DAE. However, DAE, being the largest and oldest organization with a treasure of technical information, knowledge, experience, linkages, and partnerships with most of other ESPs, makes direct and indirect contributions to the entire spectrum of agricultural development activities. The reform measures have not only increased the efficiency of the DAE, but also of over two-dozen donor-supported projects currently under implementation through DAE. Because of partnerships, many NGOs and private sector firms have also improved their effectiveness in providing extension services.

During this period, food grain production increased by 9.76 percent a year against less than one percent increase in area. Increase of food grain production resulted from increases in yield per acre due to increased area of coverage of HYVs and adoption of improved cultural practices.

A critical factor in attaining food self-sufficiency and crop diversification was the development of private seed companies and seed growers. As a result, the use of quality cereal seeds increased by 27 percent from 1997-98 to 2001-2002. Another significant area of achievement was horticultural production both homestead vegetable gardens for year round production and quality French bean and conventional vegetable production for export.

## Qualitative Impact

Extensive and diversified educational activities were conducted through partnerships among ESPs. This has changed attitudes, increased knowledge and skills, created a desire for change, and increased demand for services. As result, technology diffusion is much faster in recent years. For example, the two recently developed rice varieties (BR.-28, 29) introduced in 2000-01, have covered about 40 percent rice cultivation area within two years time; an extent of diffusion that would have required about a decade in the past. Similarly, many innovations, such as hybrid maize, organic fertilizers, soil conditioners, tissue culture, and true potato seeds, are also being diffused very fast. DAE and other partner ESPs are now

better equipped with professional tools and techniques to respond quickly to meet the emerging demands of farmers.

## Partnership Activities

To make the reform measures more effective and sustainable, a Partnership Initiative Fund (PIF) was introduced at the upazila, district, and national levels. Each upazila was allocated Tk. 75,000 (about US$1,500) per year to finance local partnership initiatives providing integrated extension services in innovative ways to meet demand-based service needs of farmers. Evaluation of the Upazila Partnership Initiative Fund operation showed that, at the time of the evaluation, on average, each upazila had implemented 14 projects through government organization-NGO-private sector firms; each project having an average cost of Tk. 6,333 (US$422) and involving 38 beneficiaries, of which 10 were women. About 70 percent of the beneficiaries were small, marginal, and landless farmers. Each participating farmer invested Tk. 5,415 (US$108) and earned a net profit of Tk. 6,036 (US$121) by following the advice of ESPs. These activities increased the workload of beneficiaries and their family members by one to five or more hours a week. Each beneficiary on average influenced four other farmers to follow the practices he or she is following.

## What Improved or Deteriorated

Decentralized planning and implementation is working better now because local functionaries need not remain dependent for day-to-day directives from superiors. Needed operational policies, funding, and institutional structures are in place. Field staff are adequately trained on tools and techniques for needs assessments, problem census, and activity prioritization. Planning formats and systems of approval are in place. Local operational units can organize activities based on local demands, combining resources of partners to meet total demand for services from farmers when needed.

Cooperation and coordination among the ESPs have improved, substantially reducing the risk of duplication in providing support to the same beneficiaries or activities. Programs are enriched with the supplementary inputs of partners. The DAE has become more responsive to needs and demands of farmers, traders and ESPs for technical and administrative support. Transparency and accountability to each other as well as to beneficiaries has increased. The UPIF evaluation showed that partners are sharing their resources and experience.

However, a major deterioration is reported in the capability of the lower echelon of professional staff. Massive orientation and foundation training was organized for both professional and nonprofessional staff. Two groups of trainers mobilized for this training: one for block supervisor training at Agricultural Training Institutes and the other for training of officer-level staff, including Agricultural Technical Officers and Agricultural Extension Technical Officers. Training of BSs at the Agricultural Training institutes worked well, but the officers group did not do so well. This has resulted in a gap in professional capacity to supervise and support frontline extension staff and BSs. Often BSs are reported to have better professional capabilities than their immediate supervisors.

## Major Benefits

A positive environment of partnership has been created for ESPs. They can work together with mutual trust and confidence, which has been gradually increasing through the operation of the Partnership Funds. This may eventually lead to one-stop services for farmers and ASIRP is now piloting such integrated

models. The DAE is increasingly working as an umbrella organization providing technical supports and linkage to other ESPs. Farmers are increasingly exposed to different sources of information, technologies, and inputs for overall improvement of their farms and farming activities. Partnerships among commercial trade organizations, nonprofit NGOs, and government organizations have created a strong base for tying technical advice to investment support and marketing provided by NGOs and TOs.

## Critical Success Factor

The most critical success factor for this reform initiative was the continued commitment and support of the GOB and the donor agencies from 1992 onward. In pursuance of its strategy of strengthening the extension system as a means of attaining the national goal of self-sufficiency in food, the GOB quickly recognized the need for adopting the NAEP and created the institutional base of the extension coordinating committees for its implementation. The GOB also contributed substantially to the Partnership Initiative Funds (PIFs). Donor agencies such as DF1D, World Bank, and FAO continued technical and financial support from the early 1990s on. This continuous support and persuasion softened the attitude and values of the very traditional public sector extension agencies. A breakthrough came in 1992-95 in a very painful process of re-orienting a large number of professionals and sub-professionals to the REA through the massive master training program.

## Sustainability and Reliability

Most of the operational and institutional reforms are part of the government's declared NAEP, and therefore, have administrative and legal status. The goal of the NAEP was to encourage partnerships among government, nongovernmental, and private sector organizations,. Partnerships have now become the norm in providing services to the farmers. The ESPs have never before been so close and cooperative. As Bangladesh agriculture moves toward more growth, the importance of those policies will increase. There is no question of discontinuity in the adopted policies, though these may be modified and improved to match emerging situations. The institutional framework of extension coordinating committees is now well-established and actively operational. These are expected to be sustainable. The many operational tools and techniques such as Participatory Rural Assessment (PRA), Farmers' Information Needs Assessment (FINA), Problem Census (PC), Seasonal Extension Monitoring Systems (SEMS), Knowledge-Attitude-Practice Survey (KAP), Technical Auditing (TA), Upazila Planning Workshops (UPW), and Strategic and Local Planning (SLP) will soon establish roots and can remain sustainable, if services remain demand-driven and effectively managed. Unless alternate policies and operational systems and procedures are adopted, these systems and tools will remain in vogue in the national extension system of Bangladesh.

General public policies and institutional arrangements are essential requirements in making a national extension system effective. These should evolve from the prevailing socio-economic and administrative system of a country, as they are widely variable from region-to-region or even country-to-country. Similarly, professional tools and techniques such as PRA, FINA, PC, SEMS, KAP, TA, UPW, and Strategic and Local Planning are essential tools for any professional extension service providers in government, non-government, or private trade and industry sectors. These tools and techniques may need to be adapted to specific situations, but the core elements of them have universal application.

Two significant initiatives have been undertaken for up-scaling the reform initiatives. First, three integrated extension models are being piloted in selected districts. If these models prove to be effective, they will be scaled-up with necessary modifications in all districts. Second, efforts are continuing—

through expert guidance, counseling and training programs—to assist all ESPs to adopt proven operational tools and techniques as part of their normal operations. In this respect, the partnership program has played a very significant role in upgrading operational efficiency of all ESPs by sharing knowledge, skills, and resources through institutional forums and interactions.

## Lessons Learned

The major lesson learned is that a long and continuing process is needed to introduce sustainable reforms in an old bureaucratic agricultural extension system. A critical factor is the reform transitional period during which all stakeholders, including policymakers, administrators, professionals, and beneficiaries, must understand what in the present system is working and what is not. This assessment of the current system must be from the perspective of how the services are performing in satisfying the service needs of beneficiaries in order to achieve both national goals and the aspirations of individual stakeholders. This may be termed as a period for objective realization of the strengths and weaknesses of the existing system and for developing a positive attitude for change.

The second important lesson is that it is necessary to formulate a package of workable reforms to put in place a system that can satisfy needs of the beneficiaries. This requires a long, intense period of passionate dialogues, discussion, experimentation, and adaptation building consensus and commitment for introducing reform measures.

Third, restructuring an organization and its personnel is a highly painful process, but is necessary to build a smaller and cohesive core of dedicated professionals, who can forcefully and effectively introduce and scale-up reform measures with minimum internal resistance.

Fourth, a continued and relentless effort was required for staff at all levels of the various organizations to understand and adopt the reform measures.

Fifth, institutionalizing the reforms and establishing a stable system is necessary to reap the benefits of the reform process. This requires continued efforts over time.

## Guidelines for Reform Managers

First, any reform initiative must fit with national goals and strategies. The reform initiative in Bangladesh was initiated at a time when government adopted a policy to achieve food self-sufficiency and a strategy of strengthening the existing system of agricultural extension. As a result, reforms were readily acceptable and government commitment and support continued in spite of change of governments.

Second, the reform package must evolve to match the socio-technical context of the existing extension and support systems. In Bangladesh prior to the reforms, the existing agricultural extension system was studied to ascertain what was working and what was not working in the prevailing situation. The reform measures were chosen to build on existing systems so that they could be introduced and generalized with least resistance.

Third, reform measures need to be developed collaboratively by appropriate representatives of government, extension professionals, and clientele. In Bangladesh a national taskforce headed by the Secretary of Agriculture developed the reform measures. Government officials, extension professionals, and farmers were represented in the taskforce. This ensured the highest level of legitimacy for the government, the service providers, and the farmers

Fourth, the policy advocacy role for the extension system should be strong enough to ensure government commitment and continued support for a long enough time to institutionalize the changes. In Bangladesh, this was sustained in spite of changes of government, giving enough time to introduce and generalize the changes.

The success of reform depends on the economic benefits that accrue to farmers. During the last decade, Bangladesh unleashed market forces so that farmers could benefit from a competitive market. This has motivated extension workers to work in a new system with economic activities that help farmers engage in more profitable enterprises.

## Guidelines for Field Administrators

One of the basic requirements for effective implementation of reform initiatives is entrusting administrative leadership to a capable executive for a fairly long time to initiate and generalize the changes in the system. Generally, capable leadership is available but continuity is difficult because of frequent changes of top executives. Over a significant period of change in Bangladesh, fairly stable leadership prevailed. However, because the reforms were supported through a donor-assisted project, the project management also played a significant role during leadership transition periods in the DAE.

The DAE is a large organization divided into technical wings and branches. A good number of senior executives played a critical role in formulation and implementation of the reform measures. Much of the success was due to the capable senior executives of different wings and branches, who took the lead in bringing forward the reforms. In the context of the REA, managers upgraded their capabilities through overseas visits and training as well as local orientation, guidance, and counseling with the technical team on the project.

During the reform initiatives, field administrators were required to maintain a high degree of internal cohesiveness and consensus. Though it is difficult in traditional bureaucratic extension organizations to keep dissidents at bay, the DAE successfully managed this problem during implementation of the reform measures. The Ministry of Agriculture played a very significant role in this respect.

During the transition and subsequent formulation and introduction of reform measures crucial decisions were made within the framework of the concept and practices of the REA. This helped field administrators to be consistent and rational in their operational decisions. A controlled and guided decision-making process is a must and was supported by detailed manuals and guidelines prepared and circulated by project management.

## Note on the Author

M. Hassanullah has 35 years' work experience in agricultural research, education and extension at the home and abroad. Presently, he is working as Senior Specialist in the Agro-based Industries and Technology Development Project (ATDP), a project of the Ministry of Agriculture, funded by USAID and implemented by International Fertilizer Development Center (IFDC). His recent works relate to development of agribusiness, crop diversification, strategic agricultural research, and development planning.

# Nepal: Projectization in the Context of Extension Reform

Tek B. Thapa and Gana Pati Ojha

Nepal is predominantly a rural and agricultural country. Approximately 86 percent of its people live in rural areas (CBS 2002) and its agriculture contributes about 40 percent to the gross domestic product. Thus agricultural extension is regarded as a most important intervention for rural development. The case study reviewed here looks at the initial experience with "projectization" of extension activities with objective-based programming in all of 75 districts in Nepal. Of particular concern to projectization is the decentralization of extension services, especially with respect to program and financial management in line with the government's Decentralization Act of some four years earlier.

## Country Context

Prior to reforms, extension agents were not clear about the location, client farmers, or goals and objectives of extension activities. The extensionists were overloaded with physical targets of demonstrations, trainings, and input supply. Many extension activities were implemented year-after-year in a repetitive programming mode. Farmers and local leaders alike criticized extension agents for not delivering impacts. District Agricultural Development Offices (DADOs) were supposed to cover the entire district with given budget and manpower resources and were repeatedly questioned by local government for underperformance and staff mismanagement.

Non-governmental organizations (NGO), community-based organizations (CBO) and agro-based industries saw merit in collaborating with government extension services and vice-versa. Accordingly, some CBOs had contracted with the integrated pest management (IPM) rice project; some NGOs had collaborated with District Agriculture Development Offices to conduct participatory rice variety selection; and a sugar mill had worked with a DADO in a sugarcane area for supply of raw materiel, a venture linking production with the market. Farmers, NGOs, CBOs, agro industries and government extension services saw merit in working together to benefit all stakeholders. Still, government policy toward collaborative activities was unclear and mechanisms needed to be improved in facilitating this collaboration.

The Nepalese extension system had been quite traditional in nature, top-down in program formulation, and physical target-oriented in implementation without regard to clients' need. The business orientation and integration of services from other non-governmental extension providers was weak. Funding was almost entirely depending on the public sector for provision of free extension services. The World Bank-financed Agriculture Research and Extension Project (AREP) launched in the late 1990s to support extension services in 23 districts, encountered implementation problems and a lack of direction in its extension component. A mid-term review of that project in 2000 recommended projectization as one of the institutional reform strategies. Accordingly, 23 AREP project districts implemented the strategy in 2001-02. And, since the reform was so appealing in offering an opportunity to improve management of problematic extension activities, the Ministry of Agriculture and Cooperatives (MAC) in the same year extended the projectization reform to cover all 75 districts of the country.

## Major Elements of Reform

Projectization was initiated to make the extension service more responsive by defining more clearly the set of extension activities to be implemented to achieve defined objectives. This reform invited greater participation of stakeholders and made extension agents more accountable to farmers. Parallel initiatives encouraged greater and more diverse partnerships in implementing extension activities and strengthened DADO capabilities through training and infrastructure improvements. The Ministry of Agriculture and Cooperatives issued countrywide guidelines adopting projectization as a strategy to match expectations in line with the available resources with different stakeholders.

A sensitization training-cum-workshop at the central level was instrumental for the initial start- up. Refinements in the process of projectization took place during a series of workshops conducted at the regional level. Projectization was done with farmers and other stakeholders by using participatory/rapid rural appraisal (PRA/RRA), problem census/ problem solving (PC/PS) and other participatory methods. Year 2001-02 saw that projectization of extension activities was completed and implemented accordingly throughout the country. Projectization consisted of using a project approach to planning with time bound activities assigned to the concerned subject matter specialist (SMS) and oversight provisions within the district for implementation, monitoring, and evaluation.

In practice, district projects generally incorporated ongoing activities into defined projects. Established pocket production programs seeking to intensify production in high potential areas were re-defined as district projects. Introducing the projectization system through out the country stressed capacity to define projects and transition from on-going activities into projects with defined objectives, clients, activities, and resource allocations. However, from the beginning it was expected that it would take at least three years to have well-defined project portfolios.

## Impacts of Reform

Several factors were critical to the initial success of the projectization reforms. Active participation of all beneficiaries and stakeholders at all stages of the project is ideal and vital for sustainability of the program. Acceptance of projectization as an important government extension strategy was a driving force for all district extension services and was facilitated by the central authorities issuance of guidelines to implement projectized extension programming. This proved to be the corner stone for success of the new reform.

Focus on activities concentrated in a specific location with an identifiable group of farmers as beneficiaries is a welcome proposition for quality extension services, which can serve as a demonstration for other farmers. Extension program planning, monitoring, and evaluation of performances become easy as does proving the worth of services. Performance indicators used in tracking projectization and related reforms included:

- **Clients directly served by projectization**. Projects have been improved by redesigning activities, focusing on raising incomes and addressing natural resources management and environmental issues. For example, in 23 AREP districts 354 projects were serving 292,736 clients.
- **Districts with projectized extension programs**. Seventy-five districts have implemented projectization and developed clearly defined objectives, activities, targets, and resource allocations for all extension projects.

- **Improved management capacity**. All AREP districts have been provided with transport facilities and computers to aid in improving management information systems and program support.
- **Increased income**. Participating farmers generally indicated that they obtained additional income from changes in their cropping patterns introduced under the extension projects.

The DOA is using these and other monitoring and evaluation indicators for yearly and trimester reports. However, there is need for further refinement in the indicators and monitoring systems.

Following projectization reforms, farmers and extensionists have closer ties and better-defined relationships. Returns are higher for many project farmers than others outside project areas. In one project, participants diversified cropping by shifting from cereal-based farming to more commercial farming systems, for example, switching from an annual pattern of paddy-wheat-paddy/spring maize to a three year pattern of banana-paddy-banana. This shift provided an annual net income from banana of US$3200 per hectare on the average (as against US$1,247 from the previous pattern dominated by cereals) (BPRC 2002).

Neighboring farmers have also switched over to new and more lucrative crops, adopted new cultivation practices, and started requesting extension services for their own needs, such as for high yielding varieties, training, observation tours, and organized marketing. In the case of the banana project, changes evident include: increased banana consumption by children and women, increased group working habits, higher incomes, increased labor wages, conversion of thatched houses into modern ones, and farmer-to-farmer extension learning.

Earlier extension programs had no definite clients, and service delivery was sporadic, erratic, and highly undependable. Now, participating farmer groups are clearly identified, activities better planned and scheduled, and women farmers' participation is targeted at some 35 percent. Training is conducted in groups in local settings so that participation becomes more convenient to farmers. Technology transfer for government extension agency is easier for groups in the designated geographical areas for each district project.

Local governments, the Village Development Committees and District Development Committees, have contributed funds for specific skill development trainings on beekeeping, developing rural agricultural workers, and vegetable farming. For the central government, extension services are financially less burdensome, because of the matching grants provided by local governments.

Projectization has also benefited private sector traders, who find it easier to collect produce from farmer groups to achieve a sizable volume of transaction. The nutritional status of women and children has also improved as a result of the increased production of nutritionally rich products such as fruits and vegetables.

Extension reforms have not as yet been fully implemented and the initial round of project definitions left many gaps, both in process and substance. Illiterate farmers, disadvantaged groups, farmers from remote areas, and resource-poor farmers, who make a large portion of the population, are usually left out by extension projectization, which has not yet directly addressed issues of poverty alleviation. Employment promotion and agribusiness development are major goals for economic development of the nation, but most district extension projects formulated-to-date still reflect the predominant production-orientation prevalent in earlier extension services. Few projects include a component for improving marketing services. This is a clear priority for the future, but one that can be better addressed in the context of clearly defined district projects.

## Sustainability and Scaling-Up

Need-based project formulation can be successfully done by the extension workers, as participatory planning techniques have now been internalized and follow-up trainings are planned for subject matter specialists and junior technician and junior technical assistants. This will provide continuity to the planning process. Farmers have also seen the merit of working together in groups and participating in projects that introduce new technology and increase income for the family. Participatory planning and projectization procedures can be replicated successfully. Responsibility for final approvals of projects making up the district extension programs is expected to be decentralized to the local government (District Development Committee) to ensure that local needs are fulfilled.

Government policy support in favor of projectization should be stepped up and continued. Success stories should be discovered, documented, and widely shared among farmers and other stakeholders of project and non-project sites in the form of a 'traveling seminar' and through exchange visits to project sites by farmers from non-project sites. Traders should be brought into the process of projectization at all stages. Business planning including agri-business skills should be imparted to extension workers at various levels. Participation by other stakeholders (NGOs, private firms) should be encouraged. Skill enhancement training on projectization should be imparted to the extension staff for the refinement of the projectized activities. Project definition must closely link solutions to the identified problems, thereby reducing the number of less relevant activities. The time and resources saved may be used for scaling-up successful programs.

## Lessons Learned

- The onerous task of projectization should not be carried out in haste. In the case of AREP, the project design did not clearly specify projectization as an output of the project in the beginning. This was only added after the mid term review, when time was too short for a reform like projectization to be implemented successfully within the remaining project life.
- The ability and commitment of the organization implementing the reform strategy should be carefully assessed during the project design. Assumptions regarding the existing capacity of implementing agencies were over optimistic in the case of the AREP.
- A major shift in the mindset of DOA personnel was necessary to implement the reform strategy of extension projectization. District project design requires an orientation to results; an ability to marshal inputs (resources) to achieve outputs; and willingness and ability to prioritize activities.
- The TA provision in the project was not adequately used for the much-needed services of projectization and bottom-up planning. Both recipient government and the World Bank seemed indifferent about the judicious use of consultancy services so valuable for the outcome of the project.
- The relationship between and among the farmers, extensionists, and other stakeholders has to some extent improved in terms of mutual cooperation and confidence building.
- Projectization reforms are probably best gradually replicated based on lessons learned from pilot sites, and the concurrent capacity building of the stakeholders involved in the process.

## References

Business Promotion, Research and Communication (BPRC). 2002. "Evaluation Case Study on Impact of Banana Production Pocket Program." Kathmandu, Nepal: Business Promotion, Research and Communication P. Ltd.

Central Bureau of Statistics (CBS). 2002. Population Census 200: National Report. Kathmandu, Nepal: Central Bureau of Statistics.

Feder, G., A. Willet, and W. Zijp. 1999. "Agricultural Extension: Generic Challenges and Some Ingredients for Solutions." .Policy Research Working Paper 2129. Washington, DC: The World Bank.

National Planning Commission. NPC. 1998. *The Ninth Plan (1997 – 2002).* Kathmandu: National Planning Commission.

Swanson, B. E, R. Bentz, and A. Sofranko. (eds.). 1997. *Improving Agricultural Extension*. Rome: FAO.

Uprety, V. 2001. " District Level Program Improvement." SEEPORT Consultancy Report. Hariharbhawan, Lalitpur, Nepal: Agriculture Research and Extension Project.

## Note on the Authors

Tek B. Thapa is Regional Director for Nepal's Central Development Region overseeing the implementation of agricultural extension programs. He has worked in extension in various capacities from district extension officer to planning, monitoring, and evaluation director in the Dept. of Agriculture. Contact Address: Tek B. Thapa, Regional Director, Dept. of Agriculture, Harihar Bhawan, Lalitpur, Nepal. Tel: (O) 977-1-521-145; Email: thapatekbdr@hotmail.com.

Dr. Gana Pati Ojha is Chairperson of Capital College and Research Center and has more than twenty years professional experience in planning, implementation, monitoring, and evaluation of rural development programs. Contact Address: Gana Pati Ojha, Capital College and Research Center, P.O. Box 2704 Kathmandu, Nepal. Tel.: (O) 977-1-272-511, ® 977-1-780-404; Fax: 977-1-277-869. E-mail: gpojha2002@yahoo.com, crcresearch@mos.com.np.

# Russia: Innovative ICT Approaches for Development of Rural Information and Advisory Services in Transition Economies

Subramanian Janakiram

The structural reforms initiated by the Russian government in December 1991 following the breakup of the Soviet Union were intended to make the transition from a centralized planning system to a market-oriented system. This created an opportunity to lay the basis for a new type of rural information and knowledge system to support reforms. Information and communication technology (ICT) was used in the broadest possible sense, consisting of a range of tools that build human networks, increase public awareness, and provide access to information and knowledge for the use of the people. Tools included

printed materials, telephones, radio, television, video, audio, and computer network. Given the complexity and the huge need, effective use had to be made of all available ICT tools.

## Context for Reform

In Russia, during the Soviet period, the information and knowledge system in virtually all sectors was strictly state controlled and was essentially designed to meet requirements of centralized planning. Very little information sourcing, message development, and media packaging took place at the local level. Requirements for meeting agricultural production quotas were channeled to Moscow, where information packages and norms, based on a central assessment of local needs, were developed and transmitted directly to state and collective farms. The information was disseminated primarily by way of dense print publications, radio, TV, public campaigns, exhibitions and fairs, and to some extent, through a computer network to areas with functioning telecommunication systems. The types of information that state and collective farms, private farmers, kitchen gardeners, agro-processing industries, input suppliers, marketing institutions and others could obtain were restricted and opportunities for exchange with the rest of the world were extremely limited and tightly controlled. There were very few avenues for cross-checking the information received.

Well-trained, in-house technical specialists served as the main providers of knowledge, addressing a variety of crop- and livestock-related problems. A large network of agricultural research institutes and experiment stations supplemented this technical support to agriculture. Most research results were introduced through directives. Linkages between education, research, extension and end-users were weak and in some areas nonexistent. However, the importance placed on education and training of all Soviet citizens resulted in a highly literate population to serve the needs of a socialistic economy. The centralized information and knowledge system was primarily aimed at meeting production targets with little or no importance placed on economic or environmental sustainability of farming systems and development of agro-industries.

Improved performance of agriculture and the rural sector was one of the most important elements needed to stabilize the Russian economy and accelerate the ongoing structural transformation in the country. However, in 1993-94, as a result of macroeconomic imbalances, inefficient farm structures, lack of competitive markets and credit, and the continuing legacy of state controlled information systems, liberalization of the agricultural sector failed to stem declines in sector profitability. Problems of access to market and technical information and a lack of awareness of how to function in a market economy were especially serious for emerging private farming operations. The World Bank-financed Agricultural Reform Implementation Support (ARIS) Project (World Bank 1994), implemented over a period of seven years from 1994 to 2001, was designed to support land reforms and assist in transformation of the agricultural sector. This involved strengthening critical support services; building analytical capacity; and demonstrating the role the private sector could play in promoting efficiency in the agro-industrial sector. This ARIS Project support for the creation of a rural information and knowledge system is the subject of this case study.

## Major Elements of Reform

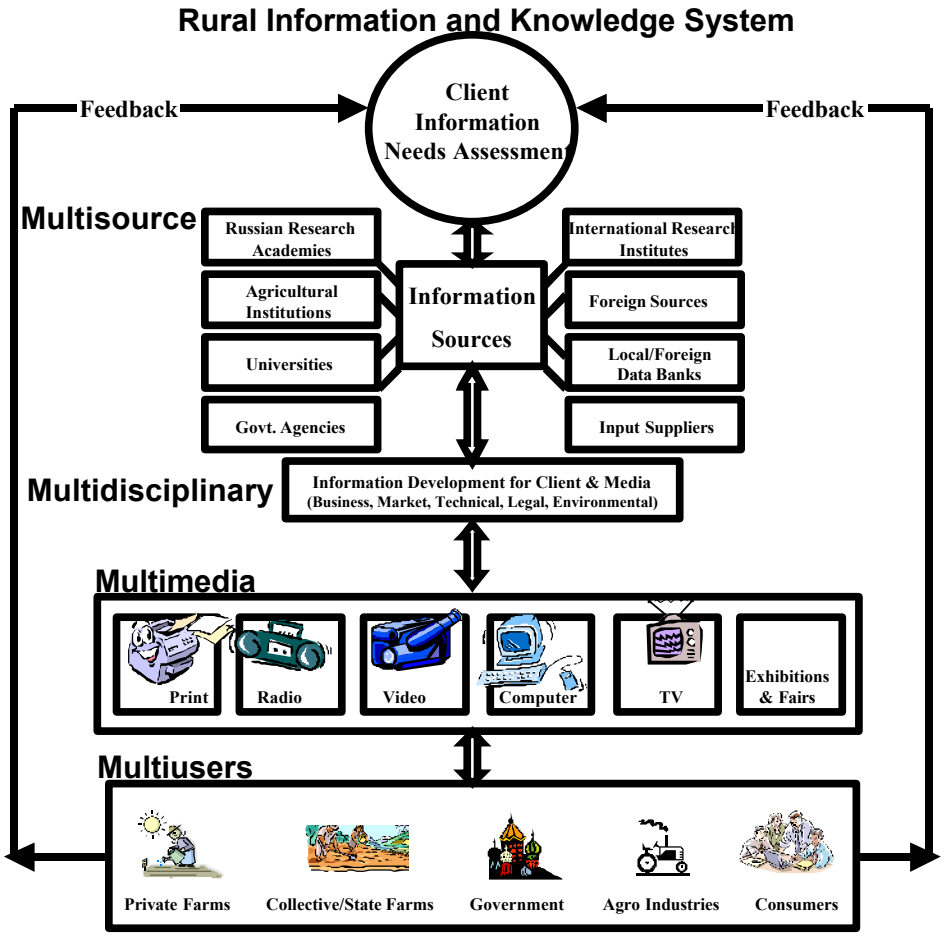
The main objective of ARIS project supported reforms was to aid in the free flow of information and knowledge, and improve decision-making of different types of emerging public and private rural enterprises, communities, and institutions during the transition from a centralized planning system to a market economy.

The approach taken to achieve this broad objective was a modular concept using multi-media to develop and disseminate multi-disciplinary information and knowledge from multiple sources to multiple users with built in user needs assessment and feedback mechanisms. This was termed the ***"4-M" modular approach*** for rural information and knowledge system (see figure 4.1). The multi-users were the newly emerging farm structures of various types, public and private institutions, communities, agro-industries, departments of agriculture; multi-sources were the local and international agricultural research institutes, universities and academies, input suppliers, producer organizations, agricultural departments, and foreign and local data banks; multi-media consisted of print, TV, video, computer network, exhibitions and fairs, whereas multidisciplinary consisted of laws and regulations, status and changes of reforms in various sectors, finance, economics, accounting, marketing, relevant technologies, and environment.

This modular approach was designed to support an evolving, pluralistic, knowledge-based rural extension system that (Alex, Zijp, and Byerlee 2002; Rivera 2001):

- recognizes the importance of diverse information and knowledge user needs;
- transfers information and knowledge in an educational and training manner rather than through directives;
- recognizes the increasing importance of non-farm activities to supplement farm incomes especially for the emerging small private farmer;
- creates strong linkages between education, research, and various forms of farming systems;
- encourages diversified service providers through contractual arrangements and public-private sector partnerships involving NGOs, producer organizations, associations of private farmers, water user associations, and others (World Bank 1990);
- creates a decentralized and localized extension program management and delivery system;
- uses all forms of media from traditional to modern;
- provides opportunities for creation of fee-based rural extension services based on willingness and ability of end-users to pay and continued, but declining, public support over time; and,
- works in coordination with other providers of rural information and knowledge such as health, education, micro and small enterprise credit, environment, and eco-tourism,

**Figure 4.1. "4-M" Modular Rural Information System**




Source: Author

## Implementation Steps

Implementation of the 4 M modular approach proceeded in four steps.

*Step one: Participatory information needs assessment:* The first step was to assess the end-user's information and knowledge needs. The target group consisted of a wide range of end-users—all types of restructured farms, individual farmers, agro-processing enterprises, household gardeners, departments of agriculture, and others. A variety of participatory processes involved end-users in defining and prioritizing their information needs. Information needs were rapidly increasing, changing and becoming complex, and being influenced by recent progress in land reforms, increasing numbers of urban and rural household "kitchen gardens," and the transformation of former farm workers into part time and fulltime farmers.

*Step two: Development of multidisciplinary information.* The second step was the development of client and media specific multi-disciplinary information packages from a variety of sources. Given the large number of research institutes in the Russian Federation, only those that addressed key information and knowledge needs of end-users were selected to develop information packages. These included the Russian Academy of Agricultural Sciences, selected regional scientific research institutes, Timirayazev

Agricultural Academy, and selected technical and management institutes. Specialized information was translated into everyday terms familiar to each target audience and presented in a format that was easy to understand and had practical value.

Training was provided to enhance skills in selection of appropriate media and packaging information. Initially, emphasis was on development of very basic information packages: (a) principles of farm management in a market oriented economy; (b) essentials of farm business planning; (c) appropriate, cost-effective farm technologies; (d) current and proposed land reforms; and (e) market information on crops, livestock, fruits and vegetables. The most important design criteria for effective and useful farmer information packages was simplicity, both in comprehension and language. One problem was the lack of appropriate Russian language terminology for some critical business and economic concepts. New term had to be created that could be easily be understood by the emerging private farmers.

*Step three: Dissemination using multimedia.* Dissemination of farmer information used a variety of information and communication technology applications such as television, video, radio, print, and computer network. Traditional channels of information dissemination were also used, such as the annual St. Petersburg Agricultural Exhibition, where various agricultural technologies, farm products, and innovations are displayed. Training for staff of the farmer information and advisory services covered preparation of farm messages and information packages for suitable types of media. Information addressing general concerns was disseminated to national media outlets through coordinated development of TV, radio, print and computer-based information products.

The Ministry of Agriculture's press video center was modernized to serve as a coordinating central unit for message development and dissemination on topics ranging from agricultural reforms to agricultural technologies to different types of farming structures and agro-industrial enterprises. The agricultural computer network was modernized at the raion oblast and federal levels with design criteria based on: (a) ease of use; (b) best available contemporary technology; (c) ease of expansion and reconfiguration; (d) security of high-value data; (e) effective use of available communication bandwidth; and (f) integration with existing international and domestic services. Lack of telephones and poor transmission quality in rural areas forced use of alternative communication channels, such as radiotelephones and diskettes.

*Step four: Feed back mechanism.* Feedback mechanisms were used to assess changing information and knowledge needs of the various end-users. Frequent changes occurred because of agricultural reforms, liberalization measures, price and subsidy policies, and the problems faced by the emerging private farmers and enterprises.

## Investment

The total project cost for creation of this information and knowledge system was US$32 million, of which US$21 million was financed by the World Bank. The major cost categories were: (a) hardware consisting of digital video equipment, servers, computers, printers, modems, radio and television broadcasting equipment, and accessories; (b) software related to operating systems, and data base management; and (c) training in various aspects of information technology, development and dissemination of information which included in-country training and foreign training.

## Project Outcomes

In regions participating in the project, there are beginnings of attitudinal changes and new ways of doing business, increased awareness among users of how to make informed business decisions, and a better understanding of the risks and rewards of a market economy.

The Farmer Information and Advisory Services (FIAS) is operational in 27 olasts and 148 raions across the Russian Federation with over 750 specialists trained in the provision of advisory services. The Ministry of Agriculture – at the federal and oblast levels – continues to support the development, dissemination and training of staff for the provision of information and knowledge to a wide range of farming structures. Almost all operating expenses are provided from federal and oblast budgets. Several oblasts that were unable to participate in the ARIS project because of their inability to demonstrate sufficient creditworthiness to the Ministry of Finance have organized and funded additional FIAS activities.

Training of extension specialists was carried out in two training centers: the Federal Training Center in Moscow's Timiryazev Agricultural Academy and the Inter-Regional Training Center of the Non-Black Soil Area of Russia, based at the Academy for Management and Agribusiness in Leningrad region. A new curriculum in the Timiryazev Agricultural Academy on agricultural extension and re-training of agricultural professionals to suit a market-oriented economy was introduced and is expanding each year.

A modern press video center in the Ministry of Agriculture uses a variety of media to disseminate multidisciplinary subjects on agriculture and related topics to regions, institutions, and farm producers. The Center's capability matches or exceeds that found in most agricultural communication and extension systems anywhere in the world. The Center has a number of programming modes such as:

- a daily radio broadcast program "own land" that covers about 90 percent of Russia's territory and, according to listener feedback, is a valued source of information on practical aspects of daily life, such as where to get farm inputs, how to store farm products, and plant protection;
- video-films on various aspects of agricultural production, marketing, business, and privatization that are disseminated to all the regions in the Russian Federation; and
- a Russian TV Rural News program carried by regional state TV and broadcasting companies.

The project supported establishment of a distributed computing network which is fully operational in 30 Oblasts and more than 300 raions across the Russian Federation, providing agriculture and market information. The website (http://www.aris.ru) has price, markets, and agriculture information and is among the top three state institution web sites in the Russian Federation. Over 2000 users access it daily. The market information provides weekly and bi-weekly producer, wholesale and retail prices on 150 agricultural products by grades and quality and on input prices for seeds, agricultural machinery, spare parts, fuel, fertilizer, chemicals, and pesticides. Price information is disseminated through the Internet, ARIS web site, mass media and on information boards in the Department of Agriculture. The MOA computer center is also responsible for the creation and updating of agricultural databases and development of application software for use by FIAS specialists.

## Measurement of Impact

Quantification of impact of information and knowledge services and its role in accelerating reforms in the agricultural sector poses difficulties because of lack of reliable data and applicable tools. The most

significant impact has been the creation of mechanisms to permit the free flow of information and knowledge to large segments of the rural population. How this increased exposure to a wide range of choices has changed attitudes and ways of doing business can only be observed over a long period of time. The institutional development aspect of the project – essential for supporting and making effective use of the ICT applications – has had positive impacts. Enterprises provided with FIAS and MIS services have become increasingly aware of the management issues faced by private agricultural enterprises and have expanded their use of software and business planning services. Significant analytical capacity has been built in agricultural administration at the federal and regional levels.

Econometric studies indicated that the market information system had led to a substantial reduction in the variation of prices of the ten major products covered by MIS within participating regions. It also resulted in a 20 percent reduction in price variation across participating regions (World Bank 2002). Historically during Soviet times, prices were set by the state and remained artificially stable. With price liberalization, wide fluctuations in prices of almost all agricultural inputs and products occurred over extended periods of time. An information system to provide relevant and timely information proved an important complement to reforms in a complex transition economy.

## Lessons Learned

*Multi-stakeholder involvement.* It is important to involve as many public and private institutions as possible in planning for information system development and dissemination. The various departments in the Ministry of Agriculture which include: universities, research institutions, non-governmental organizations, local community organizations, and public and private media organizations all have different capabilities and needs.

*Local relevance and adaptation.* Information systems must build on the local culture, customs, and media, and incorporate local mechanisms into information- and knowledge-transfer project activities. Agricultural exhibitions and fairs; harvest festivals, local TV and radio programs, and local newspapers, periodicals, and magazines can all be important.

*Careful design of technical specifications.* Incorporating flexibility and scalability in hardware technology is important to future development of systems. Hardware and software standards for information networks should be internationally accepted, using distributed computing environment, open software, and available communication facilities and bandwidth.

*Sustainability and financing.* Information services should expect limited cost-recovery, probably only recovering partial costs of operations. Information needs to be provided as a free public good, especially in transition economies.

*Support for day-to-day operations.* Office supplies, communication expenses, local transport, performance-based incentives for project staff; and other operating costs are important to efficient provision of information services.

*New enterprise opportunities.* The revolution in information and communication technologies, removal of restrictions of information flows, and exchange of information and knowledge with the rest of the world have created significant opportunities for institutions in the public and private sector to enter the "information and knowledge market." During the last few years, a large number of information and knowledge providers have been established.

## Replicability and Scalability

The modular nature of the ARIS project approach lends itself to design of the least cost and most appropriate information dissemination mechanisms to address rural user needs. Appropriate technologies range from traditional and tested radio, print, and television dissemination mechanisms to modern high technologies using high-speed computers and the Internet.

The creation of technological infrastructure and skilled personnel, and development of education and training institutions will facilitate expansion of the ARIS network for use in distance- learning programs for rural populations, faculty and students, and public officials engaged in agriculture. These will also provide the information infrastructure, knowledge, and skilled manpower base for initiating E-government, E-commerce, and E-community links.

## Conclusion

The reforms and information system established in the Russian Federation can be key elements in well functioning, pluralistic rural information and knowledge-based system. This system is based on the effective use of a variety of ICT applications at the national, regional, and local levels, and on supporting institutional development. Further progress will depend on the pace of development of: (a) a competitive economy and associated agricultural production and marketing mechanisms and (b) democratic structures for local and national governance and related participatory processes. A number of initiatives are underway to help all types of farm and non-farm enterprises and consumers in rural and urban areas to make informed choices and business decisions and to take advantage of the opportunities created by a market economy.

## References


Alex, G., W. Zijp, D. Byerlee. 2002. "Rural Extension and Advisory System: New Directions. Rural Development Strategy." Background Paper #9. (work in progress). Washington, DC: The World Bank.

Ministry of Agriculture.1996-2001. Press Video Center Publications and Progress Reports. Moscow, Russia.

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

World Bank. 1990. *Agricultural Extension: The Next Step.* Agriculture and Rural Development Department. Washington, DC: The World Bank.

World Bank. 1994. "Agricultural Reform Implementation Support (ARIS) Project." Russian Federation Staff Appraisal Report, Agriculture, Industry and Finance Division, Europe and Central Asia Region. Washington, DC: The World Bank.

World Bank. 2002. "Agricultural Reform Implementation Support Project." Russian Federation. Implementation Completion Report. Environmentally and Socially Sustainable Development Sector Unit. Europe and Central Asia Region. Washington, DC: The World Bank.


## Note on the Author


Subramanian Janakiram has worked in the Europe and Central Asia Region (ECA) since 1992 in the design and implementation of rural information and knowledge systems, micro-finance, social funds,

income generation, and farm privatization activities in transition economies and post-conflict affected areas. Since 1976, he has worked in various assignments in the World Bank group in operations in agriculture and rural development in about 30 countries in Africa, Asia, Eastern Europe, Middle East, and Latin America.

# Africa: Sasakawa Global 2000 Extension Efforts in Africa

Donald L. Plucknett

This case study assesses the experience of the Sasakawa Global 2000 (SG 2000) extension program in a number of African countries. The origin of SG 2000 is as follows: "The Sasakawa- Global 2000 (SG 2000) program is an agricultural initiative of two non-governmental organizations (NGOs) one of these programs is the Sasakawa Africa Association (SSA), whose President is Norman Borlaug; and the other program is the Global 2000 program of the Carter Center, whose Chairman is former U. S. President Jimmy Carter. SSA is responsible for overall SG 2000 program management; Global 2000's special brief is to engage in policy-related interventions with national governments, donor agencies, and organizations. The Carter Center also operates separate Global 2000 programs in public health…. Funding for the SG 2000 agricultural program comes from the Nippon Foundation of Japan…" (Sasakawa Global 2000).
The SG 2000 effort was developed in the 1980s in response to considerable despair about the future of African agriculture, particularly concerning food production (Yudelman et al. 1991). In 1986, SG 2000 began working in three countries: Ghana, Sudan, and Zambia with an operating concept that technology was available in Africa that if applied properly by farmers on their own fields with guidance by knowledgeable extension workers could more than double yields of important crops--particularly maize. Furthermore, it was expected that such yield improvement could encourage farmers and national governments to invest in agricultural technology and agricultural development. Since 1986, SG 2000 has mounted efforts in countries of East Africa (i.e., Ethiopia, Uganda, Eritrea, Tanzania), Southern Africa (i.e., Malawi, Mozambique, Zambia), and West Africa (i.e., Nigeria, Benin, Ghana, Guinea, and Mali).

This case study attempts to highlight some of the main features of the SG 2000 extension effort and its effect on extension effectiveness in African countries; and on the capacity, competence, and confidence of extension agents working with the SG 2000 project approach. These observations are based on the author's participation on a number of teams that reviewed the work of SG 2000 in Ghana in 1990 (Yudelman et al. 1991), and in four missions in 2001-2002 covering six African countries: Ghana, Malawi, Mozambique, Uganda, Nigeria, and Ethiopia.[4]

## The SG 2000 Approach

Through its original commitment as well as experience gained, SG 2000 follows several important principles: (a) mounting knowledge-based efforts; (b) an action-oriented approach; (c) developing effective partnerships with national programs; (d) training of extension workers and farmers; (e) playing a helping role in meeting new challenges and in supporting its partners in executing their joint programs,

[4]The views expressed in this paper are those of the author and should not be construed as the views of the entire review teams.

and (f) flexibility for its Country Directors in supporting those programs. Other key principles that apply are responsiveness, synergism, and farmer participation.

The helping role of SG 2000, which is perhaps its special strength and its most important operational concept, almost certainly grew out of its action-oriented approach. In Ghana, the SG 2000 program made it possible for the country's own agricultural experts to carry out what they knew or thought was possible in farmers' fields. To make that possible, SG 2000 worked closely with the Ministry of Food and Agriculture (MOFA) and aligned its own program with that of the Ministry. In fact, in 2001, Ghana government officials told us that SG 2000 is the only non-governmental organization (NGO) that works through formal government channels and institutions. SG 2000's helping role supports improved performance of extension workers by providing logistical support; especially transport. It makes it possible for extension agents to visit farms and farmers on a timely basis.

SG 2000 aligns its program, while following the six principles listed above, with the research and extension system of the host government. To make this possible, only one SG 2000 employee, the Country Director, is assigned to a country. The governments provide the human resources for the program; paying their salaries and providing some training costs. SG 2000 supports the program by providing necessary transportation (e.g., trucks or cars, motorcycles, and bicycles) to key staff from the leadership down to "front-line" extension staff in the villages. In addition, modest allowances for lunch and fuel may be given to extension workers to help support their work of supervising demonstration plots laid out and managed by farmers. SG 2000 also provides support to help solve pressing "second-generation problems" such as storage, assurance of inputs supplies, and targeted support for research to solve key problems.

The work of SG 2000 with its partner countries is exemplified by precepts enumerated in a 1990 review of the project in Ghana (Yudelman et al. 1991). Listed below is a list of those precepts.

- Introducing new food production technology among small farmers represented a high payoff agricultural investment.
- New production technology in the form of improved varieties was available for transfer to farmers.
- Adoption of improved varieties would depend on identifying optimal combinations of varieties and other modern inputs such as fertilizers in particular, and making it possible for farmers to evaluate these improved packages in large plots under supervision of extension agents and SG 2000 field staff.
- Technology transfer would be implemented through existing extension services.
- Price incentives were important in motivating farmers to adopt the improved package(s).
- A longer-term goal of SG 2000 was to develop the capacity of local extension services to mount and sustain a dynamic and effective technology transfer program that could be mainstreamed in the country so that eventually SG 2000 efforts could be phased out.
- Research-extension linkages would occur largely by exploiting on-farm research activities.
- To carry out the precepts listed above, two program thrusts would be needed: (a) broad-scale field demonstration programs under the leadership of SG 2000 country directors and (b) collaborating

national extension services and policy discussions with national policy leaders; mostly undertaken by Nobel Laureate Norman Borlaug and former USA President, Jimmy Carter.[5]

When SG 2000 begins in a country, it emphasizes (a) identification of improved or promising technologies[6] by research, extension, and agricultural experts; (b) assembling and testing a package of production technology for a main crop, often maize; (c) in the first year conducting a limited number (usually about 40) of production test plots[7] of various sizes (e.g., 0.1 to 0.5 hectares), depending on the country in farmers' fields under the supervision of extension agents and the SG 2000 country director.

With each passing year, SG 2000 graduates some farmers, usually those who have been in the program for two years, and adds others. In addition, as the extension staff in a village or district (county or province) gains confidence in the technology and in their ability to teach it to farmers, efforts are made to introduce the demonstration approach in new areas. As soon as possible in the program, SG 2000 tries to engage governments at all levels in such a way as to encourage them to take ownership of the program. This happened in Ethiopia after the second year of demonstrations. The first years of a SG 2000 program might be carried-out as follows:

- Year 1: Technology identification, technology dissemination (including training), and field demonstrations (which require practical skill, and hands-on training for extension staff as well as participating farmers).
- Year 2: More demonstration plots are started, requiring expanded training for extension staff. If first-year yields have been favorable, the program may start post-harvest training in shelling and handling, including storage of unshelled maize and of grain and promoting the availability and effective use of post-harvest equipment. Perhaps transport training may enter in here, as will the need for credit and reliable input supplies (i.e., improved seed, fertilizers, crop protection products, and tools).
- Year 3: While continuing to expand the basic demonstrations, the program begins to move to new areas, "graduating"' some of the early farmers. By this time the basic package should be in place, but may need some minor adjustments, especially as the program moves into new districts or areas. The program begins to look more widely at crops or problems that need attention (e.g., where more research may be needed or other crops might fit into the systems), especially where diversification is desired.
- Year 4: The basic demonstrations continue to increase in number and in coverage, requiring continuing training in the technologies. By this time the basic demonstrations should be successful enough that some new technologies may be introduced into the demonstrations. Conservation Tillage (also known as Zero Tillage or Minimum Tillage) is one such technology that can be introduced on small African farms with good success; though this is usually not introduced until the basic production package (i.e., good land preparation, proper plant population, row planting, row and plant spacing, number of seeds per planting site, fertilizer application-- basal and side-dress, crop

[5] Former President Jimmy Carter was awarded the 2002 Nobel Peace Prize in October 2002.

[6] In Ethiopia, Dr. Geletu Bejiga, Director of Crop Research of the Ethiopian Agricultural Research Organization (EARO), refers to this as "technology shopping."

[7] Known variously as Extension Test Plots (ETPs), Production Test Plots (PTPs), Management Test Plots (MTPs), Extension Management Test Plots (EMTP), depending on the country involved.

protection, ongoing crop care, and harvest) is in place and farmers and extension staff are competent in its management.

The SG 2000 approach follows a development pathway that begins by demonstrating higher yields for farmers under their own management and then—using a flexible and opportunistic approach based on its enabling and supportive role—works actively to resolve second-generation problems. Through all of this, national extension staff play an active, problem-solving role, with the support and encouragement of the Country Director, who has the authority and flexibility to use his budget to deal with problems as needs arise. Thus, in this development pathway approach, extension staff start by planning and designing packages to raise small farmer yields—and thereby change the national vision of what yield gains can contribute to an agricultural transformation. In this process, the program builds the capacity of extension staff to plan, train others, and supervise demonstrations and then to follow up to solve second-generation problems, all the time gaining experience in working with research organizations, and the private sector (seed industry, fertilizer dealers, and market-outlet organizations) to improve the agricultural support and development structure.

With time, as the capability of the extension staff improves and the program matures, the Country Director usually leaves the country and a National Coordinator or Director leads the program. In this way, national ownership of the program can be gained.

## Achievements and Impact

*Making use of already-available technology.* In most cases, SG 2000 has not brought new technology to countries, but rather has identified and fitted into packages technology already known by research and extension staff, but never fitted into productive packages or cropping systems for use by small-scale farmers. In many cases, improved crop varieties and other materials were already available in the countries, some coming from the national research system and some from international agricultural research centers (IARCs) and made available through the international collaborative crop nursery system.

*Improving input supply systems.* SG 2000 has stressed the need for reliable supplies of good quality seed of high-yielding varieties and hybrids of important crops; and has made that a key part of its approach to yield improvement through its demonstration program. SG 2000 has played a leading role in pointing out the need for reliable and sustainable production and distribution systems for crop seeds in African countries, and has encouraged the development of private input dealers to supply fertilizers, agro-chemicals, small tools, and other inputs in rural areas.

*Improving yields in major crop.* Yields of demonstration plots, particularly of maize, have improved markedly in all the countries studied. In most cases, farmers were able to double, triple or quadruple maize yields over traditional practice. In some cases, yields of 8 to 10 mt/ha of maize grain have been obtained. Wheat yields in Nigeria have doubled, while maize yields reached 6 t/ha or more. In Ethiopia, maize and wheat yields in demonstration plots were so dramatically higher that the government took over funding for the demonstration effort; promoting growth of demonstrations until in 2002 more than 4 million demonstrations were established. SG 2000, operating with relatively limited resources, has been able to encourage or introduce a number of new technologies to African countries, including conservation tillage, quality protein maize, agro-processing, fertilizer use and management, storage, and post-harvest handling.

*Improving performance and capacity of extension agents.* By demonstrating high-yielding technology in large demonstration plots in places where traditional yields are low, the SG 2000 approach gives

extension agents something they can demonstrate effectively to farmers—amounting essentially to new tools and a better toolkit, all within the context of a hands-on approach. Improving the capacity and competence of extension agents to promote yield improvement by small-scale African farmers raises their confidence to work effectively with farmers. The SG 2000 program helps village extension workers with little post-high school education, often certificate level, to learn new technology and promote that technology in demonstration plots large enough to show an economic effect. The program also engages the village extension workers in planning and executing demonstrations in a regional, provincial, or national system. Support from the SG 2000 program provides incentives and a means for competent but less-well-educated extension workers to obtain higher education at Diploma or BSc level and beyond.

*Improving research-extension collaboration.* Through demonstrations, the program provides a way for extension and research agencies to work together in (a) identifying candidate technologies (i.e., including crop varieties and agronomic practices) for demonstration; (b) agreeing on packages of production technologies to be developed; (c) identifying research needed to support the demonstrations; (d) agreeing on technologies that extension agents can develop further; and (e) working together in training efforts to prepare extension agents to teach and oversee demonstrations in farmers' fields and under farmer management.

*Encouraging rational agricultural policy reform.* SG 2000 has taken a leading role in the countries in which it works and encourages agricultural extension services and partners to emphasize some critical elements of agricultural development that include crop intensification and diversification; private-sector approaches to agricultural development; credit for small-scale farmers, including innovations in micro-credit approaches; development of an effective local seed industry; reliable supplies of inputs (i.e., seed, fertilizer, crop protection materials, other agro-chemicals); farmer group formation; and extension education.

## Strengths of the Approach

The changes in extension services brought about by the SG 2000 approach are very important. Because SG 2000 aligns its program with that of the host government and operates within the Ministry of Agriculture, its work can help change a country's agricultural technology innovation and delivery system. Program management and operations are guided mostly by the nation's own extension personnel and within its own structures.

## Large-scale Extension Demonstration Plots

Demonstrations are a key part of the SG 2000 approach and are an important entry point for technology development and transfer as well as institutional change. Working within the Ministry of Agriculture, the Country Director, and Ministry leaders identify extension leaders and other personnel who will staff the SG 2000 Project. This includes appointing a National Coordinator and other Coordinators at province, county or district level. Often times these are people that are outstanding extension leaders. The SG 2000 leadership group plus research leaders working together in a national taskforce use a "best-bets" approach to identify technology that can be used in a production package for the first-year demonstrations. These usually number about 40. During this process, researchers and extension personnel learn how to work together and make decisions on the relevance and probability of success of various technologies and on the availability of needed inputs such as seed, fertilizer, and crop protection materials. In this system, both researchers and extension personnel have a voice in the technology to be used. After decisions are made

on the best-bet technology package, training of extension leaders and key extension agents is essential before any contacts are made with potential farmer participants.

When the technology package is agreed on, and extension leaders and agents are trained in its use, candidate farmers are contacted in areas where demonstrations are planned. Incentives, often credit, in the form of needed inputs for the farmer-managed demonstration plots may be arranged for participating farmers. Hands-on training by extension leaders and agents then begins for farmers who agree to participate. Often farmers adopting the new technology will need to rearrange their fields, (e.g., spacing ridges more closely to facilitate closer rows: 75 – 80 cm instead of 100 cm or more); planting in rows for the first time; using higher plant populations (50-55,000 plants per ha as compared to 30,000 plants/ha or less); planting seeds more closely in the row (25 -30 cm as compared with traditional spacings of 100 cm); planting fewer seeds per hill (1 to 2 seeds as compared with 4 or 5 or more); and applying fertilizer in small holes and covering with soil between plants in the row.

Local or village extension agents supervise the farmers during the cropping season—an agent may supervise as many as 10 farmers. SG 2000 provides bicycles to allow agents to travel to farms on a timely basis, as well as modest support to meet costs of village visits, including a small allowance for lunch. The extension services use demonstration plots and field days to show the technology to other farmers and local leaders such as village elders, and district officials. Dramatic improvement in growth and yield of demonstration plots in comparison to traditional practices, often four- or five-fold yield increases, makes the demonstrations a powerful tool for showing the productive potential of a region or country. Such results gain the attention of provincial or even national leaders.

When yields improve, it almost axiomatic that second generation problems will emerge. One of the first is the need for storage of the crop, whether as maize in the ear or as grain. Here the helping role of SG 2000 is very strong. The SG 2000 leadership can begin to explore ways of developing storage systems that fit the circumstance of smallholder farmers and their production environment. The SG 2000 approach has many advantages that help to strengthen the extension services of African countries.

- Demonstrations show the potential productivity of agriculture in countries in which low yields predominate. As one Ministry official told us, “SG 2000 has shown us potential productivity targets at which to aim.”
- Demonstrations are large enough (most are 0.1 to 0.5 ha) to have an economic effect for participating farmers. For example, in Malawi, 0.1 ha demonstrations have yielded more than the farmer ever obtained on an acre or more. For farmers managing 0.5 ha demonstrations in areas where traditional practices predominate, the economic effect can be transforming, providing a new vision of what life could be for the farmer and his or her family.
- With successes, as described above, extension agents gain confidence in their ability to teach and supervise higher-yielding technology and at the same time show their communities, supervisors and others what good extension work can accomplish.
- Because the SG 2000 approach relies on identifying available technology in a country and fitting it into technology packages, extension agents become active participants in technology generation and transfer, and thereby become more effective partners in identifying problems that need solutions, either through changes in policy or research.

- The dramatic yield improvement in the demonstrations provides an opportunity to show national leaders the potential for improving agriculture and the need to place priority on agricultural development.
- Effectiveness of demonstrations depends on reliable supplies of inputs in production areas, well before the crop season begins, and at a price that smallholder farmers can afford. Reviews show clearly that reliable supplies of inputs are best assured by private input dealers and stockists operating in places close to farmers. Extension agents working with new technology learn quickly the importance of working with private dealers and stockists in supply of inputs, and many have learned to form working relationships with dealers and stockists.

## Building and Transferring Leadership

The program builds extension leadership as it grows in the first year, when technology is identified, put into packages, and trained to extension staff and farmers. During this period the Country Director with the help of the National SG 2000 Coordinator takes a leading role in program development. As Provincial Coordinators and District Coordinators gain experience, they take on more responsibility for annual demonstrations and budgets--reporting yields of demonstrations and farmer responses and needs. From the second year on, more and more training is done on a decentralized basis under the guidance and leadership of the National Coordinator.

Often, certain extension leaders begin to take on responsibility for specific topics and may become specialists in that field. For example, a young man in Mozambique has specialized in Conservation Tillage practices for small-scale farmers and is called upon to teach the practice(s) outside his usual sphere of emphasis. Outstanding leaders are identified early and given responsibility, with an aim of having national leadership in place as soon as possible and practicable. Today, three SG 2000 programs are led by National Coordinators: Ethiopia, Ghana and Nigeria.

## Difficulties Encountered with the SG 2000 Approach

There can be problems in implementing SG 2000 programs. Demonstrations must demonstrate something much better than what farmers are currently doing, and anything that hampers good demonstrations is an impediment. Included here are input problems of poor seed (i.e., poor germination, poor genetic, and yield potential) or lack of fertilizer (i.e., unavailability, insufficient amount used, lack of the proper type or formulation) and problems with management of demonstrations, including poor training of extension agents in the technology package, poor training of farmers by extension staff, or poor supervision of farmer-managed demonstrations by extension staff.

There are also problems relating to sustainability of yield gains from demonstrations. Perhaps the major one is lack of available credit. Poor repayment of loans by small farmers is a huge problem in many cases. Particularly germane to extension staff is the situation where the extension agent has to collect loan repayments from farmers for the demonstrations--a sure way to discourage any effective relationship between extension workers and their farmer clients. No farmer wants to meet a bill collector.

## Conclusion

In closing, I would say that in almost 30 years of traveling and working in Africa, I have never seen a program that so effectively brings improved technology to small-scale farmers and helps them to achieve

high yields under their own management. The development pathway approach of SG 2000 provides a way for one person, the SG 2000 Country Director, to enter a country and initiate a program that aligns itself with national programs efforts, while working within governmental structures, with an extension staff provided and paid for by the government. Over a decade, the approach has allowed extension staff to increase their capacity and competence to carry out provincial and national demonstration efforts with small-scale farmers, with farmers themselves managing the demonstrations under the supervision of extension staff. Some countries have seen the Country Director leave and the overall management and leadership of the program vested in a Country Coordinator or Country Director.

## References


Ekboir, J., Boa, K., and A. A. Dankyi. 2001. " Impact of No-Till in Ghana." Unpublished paper. Crops Research Institute, Kumasi, Ghana, and Economics Program, CIMMYT, Mexico.

Morris, M. L., R. Tripp, and A. A. Dankyi. 1999. "Adoption and Impacts of Improved Maize Production Technology: A Case Study of the Ghana Grains Development Project." Economics Paper 99-01. Mexico: CIMMYT.

Plucknett, D. L. 1991. "Modern Crop Production Technologies in Africa: The Conditions for Sustainability." In H. C. Russell and C. R. Dowswell (eds.), *Africa's Agricultural Development*: *Can It be Sustained*?( pp. 127-140). Mexico: CASIN/SAA/Global 2000.

Plucknett, Donald L. 1993. *Science and Agricultural Transformation*. International Food Policy Research Institute Lecture Series No. 1. Washington, DC: IFPRI.

Plucknett, D. L. 1995. "Agricultural Research and Technology Innovation in Africa*:* Organizational and Financial Concerns." In M. Blasé et al. (eds.), *Sustainable African Agricultural Technology Systems* vol. 2 (pp. 161-195). Position Papers and Annexes. Gainesville, FL: Tropical Research and Development.

Plucknett, D. L., T. Matsumoto, H. Taskase. SG 2000. 2001. *A Review of the Sasakawa Global 2000 Program in Ghana*. Tokyo, Japan: The Nippon Foundation.

Plucknett, D. L., T. Matsumoto, K. Takase. SG 2000. 2002. *A Review of the Sasakawa Global 2000 Program in Mozambique.* Tokyo, Japan: The Nippon Foundation.

Plucknett, D. L., T. Matsumoto, S. Asanuma. SG 2000. 2002. *A Review of the Sasakawa Global 2000 Program in Uganda*. Tokyo, Japan: The Nippon Foundation.

Plucknett, D. L., T. Matsumoto, K Takase. SG 2000. 2002. *A Review of the Sasakawa Global 2000 Program in Malawi*. (in preparation).

Plucknett, D. L., T. Matsumoto, B. Koroma. SG 2000. 2002. *A Review of the Sasakawa Global 2000 Program in Nigeria*. (in preparation).

Sasakawa-Global 2000. 2000. *Report of Sasakawa-Global 2000 Assessment Mission to Ghana.* July 10-20, 2000

SG 2000. (2002). *A Review of the Sasakawa Global 2000 Program in Ethiopia*. Donald L. Plucknett, Tetsuo Matsumoto (Chairman) and Bashiru Koroma. (in preparation).

Twumasi-Afriyie, S., B. Badu-Apraku, P. Y. K. Sallah, W. Haag, E. A. Asiedu, K. A. Marfo, S. Ohemeng-Dapaah, and B. D. Dzah. *Development and Release of Obatanpa, an Iintermediate Maturing Quality Protein Maize Variety in Ghana*. Kumase, Ghana: Crops Research Institute. pp. 19.

Yudelman, M, J. K. Coulte,: P. Goffin, D. McCune, E. Ocloo. 1991. *The Sasakawa-Global 2000 Project in Ghana: An Evaluation*. 69 pp. + 2 Annexes.

Zinnah, M. M. 1999. Report on "Sasakawa Africa Fund for Extension Education (SAFE) programme." (B.Sc. Agricultural Extension Programme) at the University of Cape Coast, Ghana.

### Note on the Author

Donald L. Plucknett, former Senior Scientific Advisor (retired), CGIAR, The World Bank, and Professor of Agronomy and Soil Science (retired), University of Hawaii. President and Principal Scientist, Agricultural Research and Development International, 4200 Evergreen Lane, Suite 323, Annandale, VA 22003.

# The United States: Establishing Rural Development Extension

George R. McDowell

This case study is about the introduction and institutionalizing of rural development as part of the program portfolio of the United States Department of Agriculture (USDA)/Land-Grant universities extension system – the extension system in the United States. In the United States the extension system is an outreach arm of the Land-Grant universities and operates in some degree of concert and occasionally in harmony with the United States Department of Agriculture. It is called the Cooperative Extension Service because support and funding comes from three levels of government (a) the federal through the USDA, (b) the state through the Land-Grant University of the state, and (c) county or local government. In the past 35 years the federal contribution has dropped from more than 40 percent to less than 24 percent on average across the country and the federal influence has declined with it (McDowell 2001).

The U.S. extension system was established primarily as an agricultural extension system because more than sixty percent of the population was agricultural at the time of the Morrill Act that established the Land-Grant system in 1862. However, as early as 1911 and prior to the actual establishment of extension under the Smith-Lever Act of 1914, according to Miller (1961), there were debates within the American Association of Land-Grant Colleges and State Universities about the portfolio of Land-Grant colleges being too narrowly restricted to agriculture. Assistant Secretary of Agriculture at the time as addressing a meeting of the body saying, "This association should not forget the great importance of other than agricultural lines of endeavor. There are twice as many people in vocations other than agriculture as there are in agriculture; and about half our people are directly interested in home economics. Why narrow this question to one of agriculture

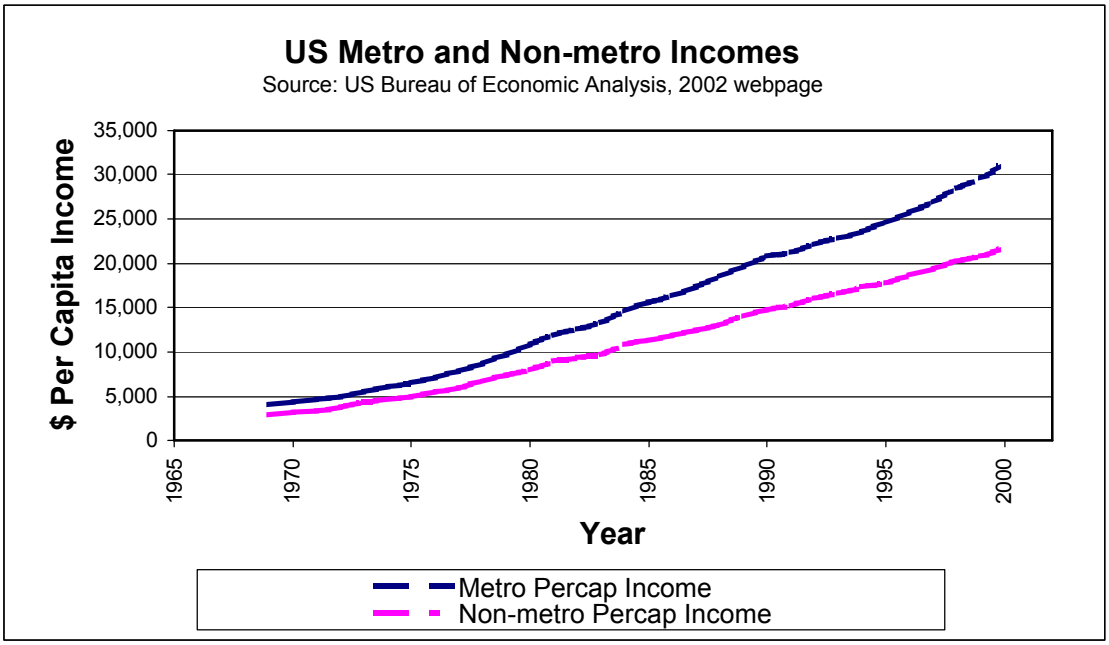
Whereas the federal partner in the system has a clearly agricultural mission, neither the Land-Grant universities nor the counties necessarily have agriculture as their primary concern. The major crisis of the system in 2002 is that the extension portfolio is too restricted to agricultural issues; with something in the order of 45 percent of the portfolio serving agriculture in a society with less than 2 percent of the population engaged in agriculture. One area that extension most seeks to move into as it broadens its portfolio is rural development.

Rural development has been a part of extension in the U.S. for the past 50 years but this has seldom been more than a token effort. The first rural development leader for extension at the national level was employed in 1970. The most significant federal encouragement for rural development extension in recent history occurred with the passage of Title V of the 1972 Rural Development Act which gave US$10.4 million for the effort annually for several years and became the charter for extension to have a role in rural development. The Act established four regional rural development centers to coordinate and facilitate rural development research and extension. The authority to make appropriations for rural development extension under Title V of the Act was extended into the 1980s but with little in the way of appropriations. By 1985 earmarked appropriations for community and rural development were limited to small sums that barely kept the regional centers operating (Rasmussen 1989).

Despite the presence of the regional centers that have helped to maintain a minimum presence of rural development in Land-Grant research and extension agendas, only one state, Wisconsin, has really been able to make rural development a significant part of its extension agenda. In the last year (1992) for which there is detailed and reliable manpower (Full Time Equivalent) data, the average proportion of the extension portfolio nationwide committed to rural development was 7 percent. In Wisconsin, in 1998, the rural development effort was 20 percent of their program as measured by FTEs and 22 percent as measured by expenditures (McDowell 2001).

The major motives for introducing rural development efforts into extension in the U.S. are two. First, rural incomes in the United States have lagged urban and suburban income and are diverging at the turn into the twenty-first century as Figure 4.2 illustrates below.

**Figure 4.2 U.S. Metro and non-metro incomes**




Though farming is rural, the economic problems of the rural U.S. are not addressed very much by agricultural policies and programs. Improving the lives of rural people and the places they live cannot be accomplished with agricultural extension programs or even agricultural commodity programs. This is true, because there are more rural people engaged in manufacturing and service industries than agriculture. Furthermore, both problems and solutions are place specific – that is, the problems are unique

to particular rural places, the resources available to exploit or use are also unique to places and the solutions must be as well.

The second motive for introducing rural development programs is because extension programs generate political support for the total public knowledge and information system including that part of it committed to agriculture, the agricultural knowledge and information system (AKIS). Farming people can no longer sustain the system without support from non-farming people. Program portfolios must be broadened to broaden the base of support.

## Impacts of Reforms

The adoption of rural development as an integral part of the USDA/Land-Grant extension system is far from complete. Although there are widespread pronouncements by extension leaders about including rural development as a central part of extension, there remain states where rural development in one or another of its forms is prohibited by state edict. The opposition to rural development programs, indeed the opposition to broadening the extension portfolio into anything but agriculture, comes primarily from agricultural producers who see the resources going into other programs as a loss of resources for themselves. A part of the perception that leads to this opposition stems from agricultural extension staff who engage in fixing the extension system for themselves.

## Impacts on Extension

Rural development extension frequently requires different staff. A major impact of the introduction of rural development as a part of the U.S. extension portfolio is that the extension methodology for rural development is vastly different than the methodology for most of the rest of extension program. This requires totally different approaches and even different staff. The difference is profound and multifaceted. Although agricultural extension involves a complex knowledge base that includes agricultural biological, physical, and social or economic science, the knowledge base for rural development in the United States is even more complex. Because rural development is heavily place specific, any knowledge or technology that will instruct decisions about the improvement of rural places or rural people should be included in the knowledge base.

Though successful rural development is the result of individual entrepreneurial decisions, many of the individual decisions are instructed by collective decisions at the local level. The decision on whether to have either water systems or sewer systems or both will have important impacts on entrepreneurial decisions in a rural community, as well as changing the settlement patterns in the community. Thus, it is that rural development extension is more often directed at assisting groups and communities to make collective decisions. Although some will suggest that the facilitation of group process is all that is involved, that would be a mistake. Nevertheless, thorough understanding of good collective decision processes is essential to the practice of rural development extension.

The major difference between agricultural extension and rural development extension in practice turns on the difference between individual and collective decisions. Because farming decisions are mostly individual, a “best practice” from science and technology can be recommended. Because much of rural development is collective decision-making there will be multiple “best practices” depending on the preferences in the collective. Thus the knowledge base supporting the collective decisions must be richer and more flexible. The extension agent cannot know all of the knowledge and must have access to a large

resource base of expertise. Indeed, there are no best answers in many of the collective decisions to be made in rural development.

The conduct of extension in this context is such that agricultural and other traditional extension agents are frequently uncomfortable with not having a scientific best answer. Agents who work in rural development are frequently trained in business management, public administration, natural resource management, economics, or sociology and have training in public policy education. If agents are not already trained in public policy education, they soon learn it.

A focus on rural development can change extension's self-image. A great deal of the experience of agricultural extension has been that it has been the "expert" with answers for farmers' problems. The movement into rural development makes extension educators collaborators with rural people in solving their problems, and that is a different external and internal image. As noted above, there is often more expertise required to address the multitude of problems that may be faced in rural development than in agricultural extension. Similarly, rural development field staff professionals require as much skill and expertise as any agricultural extension educator-- the skills and expertise are simply different.

The most profound influence of rural development extension on the extension organization comes through the sense of the collaboration between extension staff and representatives for the community. Thus, although the extension professional may very well have been a key resource to the community in its development and decision-making process, there is a clear sense of a unique achievement by the community when success follows its actions. The process of community development is not just advancing the well-being of a community by solving specific difficult, and often technical, problems. There is also the growth and development of civil society as well. The experience of participating in the improvement of civil society beyond solving of specific problems in specific communities serves to make extension staff involved in rural development more broadly focused and particularly thoughtful educators.

## Impacts in Rural Communities

The evidence of change in rural communities, as a result of sustained extension efforts, is primarily anecdotal and political rather than statistical. In the case of the Wisconsin CNRED program, the political evidence is that the Cooperative Extension Service gets more overall support for its program as a result of its rural development efforts than for its agricultural extension efforts. This has been true through the past 15 years or more according to conversations with several successive leaders of Wisconsin extension. The records of rural development extension in the United States, where it has been sustained, are replete with anecdotal evidence of communities that have addressed major social and economic problems and overcome them with the assistance of rural development extension agents.

Nevertheless, rural development extension remains the remnant or residual function within the Land-Grant Extension system. The commitment to placing rural development professionals in field assignments in the extension system exceeds only the commitment to supporting research on the problems of rural communities. Land-Grant universities at which there is a single social scientist or perhaps two addressing the rural problems of the state are more common than are the states in which there is a greater scholarly commitment. Rural development in 2002 is beginning to receive greater lip service but there are not yet dollars to go with the words.

## Is Reform Sustainable and Replicable?

The issues of sustainability and replicability of rural development efforts in the United States are really questions about whether the efforts in Wisconsin can be duplicated elsewhere. In all likelihood the answer to that question is "no!" The Wisconsin experience is fundamentally built on a unique political situation that generates a political base in each county where there is an extension agent with the CNRED assignment. As with most county extension programs in the United States, each county extension program has an extension advisory committee or council. In Wisconsin, unlike any other state, the county extension committee is a subcommittee of the Board of Supervisors and made up only of elected county supervisors. Thus, unlike such committees or councils in other states, the Wisconsin county committees members have a broad existing political constituency, term limits, and a political powerbase besides the extension committee. As elected county supervisors, they must reflect a broad set of county concerns. When, as the Board of Supervisors, they ask the University of Wisconsin Extension Department for a community development agent, the university pays attention to what they say. Furthermore, at the state level, the collective representation of the county committees is the Wisconsin Association of Counties, a body whose approval any politician aspiring to statewide or federal office will require. Thus, the Wisconsin Association of Counties can take on the Wisconsin Farm Bureau vis-à-vis extension programming and win.

Although the Wisconsin political support base is unique and can probably not be duplicated in other of the American states, it is instructive for both the United States and for other countries. It provides some clues about what others seeking to move aggressively into rural development or otherwise broaden their extension portfolios should do. They must address local needs and build a mechanism at the county level to be a voice for that kind of extension programming. In the U.S. that probably would be with traditional extension advisory committees. However, in order for such a committee to be effective, it would require broad representation, term limits, and a state-level voice to act on behalf of a broader extension portfolio.

The other important issue of replicability in the Wisconsin rural development experience is the development of a cadre of academics in a variety of departments around the university to provide support to the field staff. Extension administrators must recognize this chicken-and-egg kind of dilemma in the development of an extension program. It is difficult to have good programs to deliver without supporting research and scholarship, and it is similarly difficult to get the resources to do the scholarship without proven programs in the field.

Other issues of sustainability or replicability such as qualifications of field staff and program packaging are easily duplicable; and is taking place in the United States. Computer-based economic impact analysis, and a variety of other community-oriented extension deliverables are in evidence around the country. Perhaps the most advanced in this regard is not Wisconsin but the efforts of Dr. Gerald Doeksen at Oklahoma State University. Doeksen has created a number of easily computable models for community-level application that involve things such as least cost school bus routing, most effective location for ambulance and fire response services, feasibility of establishing health clinics, and many others. Such products deliver information with public good attributes in private good packages by tailoring the information to specific users – a technique used widely within extension in all subject areas.

Several other efforts primarily in the economic development area include the Community Development Readiness Survey developed in Wisconsin under the leadership of Pulver and Shaffer, and the Business Retention and Expansion (BR&E) program developed by George Morse of Minnesota. In the case of each of the models or techniques developed to bring knowledge to bear on a community problem in a

systematic manner, the brain trust is a single individual or pair (in Wisconsin) and most of the material is easily transferable.

The major dilemma in taking the experience and efforts from one state to another is the lack of investment in campus based faculty and support staff. There is still a predisposition by many extension administrators to believe that because community development is a process, the training of field staff in process skills is all that is required. Unfortunately there is a failure to understand that there is a fundamental difference between group process skills and the processes involved in political collective decision-making. The latter is the public policy process and the former is consensus building of group discussions where the stakes are very low. This misunderstanding of the character of the process involved leads to insufficient investments in campus-based support for field staff and limits the transferability of program packages.

## Lessons Learned

The agricultural extension apparatus in the United States is supported by a huge science establishment that has developed over a 150-year period. The problems of rural communities in any country are infinitely more complex than are the problems of farms, if only in the mix of both individual and collective decision-making that is involved. Support for rural development extension programming must involve equivalent or greater support than for agricultural extension in research and development in subject matter relevant to the economic lives of rural communities. Furthermore, because rural development is highly place (location) specific, there are few "one size fits all" approaches that can be used. Therefore, the support mechanisms for a cadre of rural development field staff will be infinitely more demanding than for a cadre of agricultural extension workers; where multiple workers will be working in virtually identical cropping or husbandry circumstances with identical technological demands.

Extension managers or bank staff must understand the fundamental impact of rural development activities on civic society and its proximity to political and public policy issues. In American communities where political processes are relatively more transparent than many places in the world, those extension personnel in rural development not sufficiently astute can find themselves in political difficulty. This is not an argument against undertaking rural development extension, rather it is an affirmation of its centrality in the society, and the need to provide training and preparation for field staff on such matters. For those who practice rural and community development it is instructive to know that by at least some classifications several of the meaningful theories of development include conflict as a part of their descriptor. That is, there is implicit in rural development a threat to established norms, institutions, and practices. The changes are likely more threatening than are many of the technological changes in agriculture because in rural development they are likely changes in community processes rather than being technologically based.

## References

McDowell, G. R. 2001. Land-Grant Universities and Extension into the 21st Century – Renegotiating or Abandoning a Social Contract. Ames, IA: Iowa State Press.

Miller, P. A. 1961. The Agricultural Colleges of the United States: Paradoxical Servants of Change. Centennial Convocation, American Association of Land-Grant Colleges and State Universities.

Rasmussen, W. D. 1989. Taking the University to the People – Seventy-five Years of Cooperative Extension. Ames, IA: Iowa State University Press.

## Note on the Author

George R. McDowell, is a Professor of Agricultural and Applied Economics, Virginia Tech is  He is Hauthor of *Land-Grant Universities and Extension into the 21st Century – Renegotiating or Abandoning a Social Contract*, Iowa State Press, Ames, Iowa. 2001. Dr. McDowell has worked in rural development in the United States in Massachusetts and Virginia, and internationally in South Vietnam, Kenya, Malaysia, Zambia, and Albania. He currently serves as a resource person to the U.S. Extension Committee on Policy (ECOP) subcommittee on Implementing the Vision for Extension into the 21st Century, and as staff to the Rural Virginia Prosperity Commission of the Virginia legislature.