THEMATIC NOTE 5

Organizational Change for Learning and Innovation

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SYNOPSIS

Earlier sections of this module identified strategies for agricultural research organizations to work more effectively with partners in an AIS. This note discusses the changes that research organizations may need in their management practices, structures, and incentives if they are to use these strategies effectively. It emphasizes the need for agricultural research organizations to become "learning organizations" that are responsive to changes in their environment and innovative in their policies, management practices, and structures. Becoming a learning organization frequently requires: shifting from closed innovation strategies to more open ones; shifting from simple, hierarchical organizational designs to more complex ones that feature multidisciplinary teamwork and multi-organizational collaboration; shifting from traditional planning and implementation systems to adaptive management; expanding evaluation functions to encompass both accountability and learning; and incorporating societal concerns and priorities into performance incentives.

BACKGROUND AND CONTEXT

This thematic note outlines changes in organizational structures, management systems, and incentives that agricultural research organizations can make to improve their performance in AISs. It develops a number of themes introduced previously and offers practical suggestions for improving research-action linkages and partnering in the day-to-day work of agricultural research organizations. The changes discussed may apply to organizations operating at the local or zonal research level, national agricultural research institutes, regional or subregional bodies, and international agricultural research centers. Whatever the case, the aim is to make agricultural research organizations more open and responsive to changes in the external operating environment and more effective in linking research to the practical needs of clients and society more broadly.

INVESTMENTS NEEDED

This section highlights the importance of change management and capacity development. It identifies the main areas in which agricultural research organizations may need to change and where investments may be useful. Priorities for investment to support organizational change are summarized in table 4.7.

Capacity development and change management strategies

The shift from a linear model of technology generation and transfer to an innovation system model, which involves a range of stakeholders from the start, requires new competencies related to communication, participatory planning, facilitation of teamwork, and learning-oriented evaluation. Conventional capacity development has concentrated on developing the knowledge and skills of individuals, but research organizations that perform effectively in innovation systems also require changes in policies, management systems, and incentives.

There are two basic approaches to organizational change: top-down (deliberate) change and bottom-up (emergent) change. In recent years, agricultural research organizations with weak leadership have implemented numerous but disconnected strategies, often driven by external donors. This type of bottom-up change fragments decision-making and jeopardizes the coherence of an organization's programs. Transforming an agricultural research organization into a learning organization requires that bottom-up initiatives be complemented with strong leadership from the top, to ensure that organizational learning takes place and that useful organizational innovations are mainstreamed.[1] Leadership within

Table 4.7 Priorities for Investment to Support Organizational Change

Organizational element	Priority for investment and change
Capacity development and change management	Develop new competencies related to communication, facilitation, and mediation needed to work with diverse stakeholders in identifying and developing new opportunities for technical and institutional innovation
Strategy formulation	Shift from production of research outputs to fostering innovation processes that contribute to broad socioeconomic goals
Accountability and governance	Include representatives of diverse stakeholders, including smallholders, market agents, and consumers, in governance bodies
Partnership policies	Formulate policies for working with partners, including the objectives and types of partnership and principles for decision making, communication, and sharing of costs and benefits
Planning and priority setting	Develop practical procedures for systematic planning and priority setting, which combine stakeholder inputs with analysis of costs and benefits
Monitoring and evaluation (M&E)	Develop learning-oriented M&E systems that clarify "impact pathways," monitor progress in relation to these markets, and use results to improve the design and implementation of ongoing and future work
Incentives for change	Reward teamwork and partnerships that produce practical results. Develop competitive grant schemes for innovation projects
Administration and finance	Increase flexibility in arrangements to allow adaptive management and responsiveness to emerging needs and opportunities
Organizational arrangements	Develop mechanisms or units to manage inter-organizational partnerships with multiple lines of accountability
Beyond the agricultural research organization	Develop specialized innovation brokerage units outside of the national agricultural research organization

Source: Author.

the organization is needed to formulate appropriate goals and strategies, improve policies and management systems, and adjust organizational structures where appropriate.

Organizational change is a highly political process, because there are winners and losers. For that reason, change initiatives need to have a powerful guiding coalition and local support. Effective capacity development and change management require experts, local and international, who possess not only technical expertise but skills in coaching, process facilitation, and management development.

For agricultural research organizations to shift their focus from *doing research* to *using research to foster innovation*, they are likely to need changes in the following areas: strategy formulation; accountability to end-users and beneficiaries; partnership policies; planning and evaluation systems; incentives; administration and finance; and organizational arrangements. Box 4.22 describes how a Tanzanian capacity-development program addresses some of these needs.

Strategy formulation

Reformulation of the basic goals, values, mission statements, and strategy documents of agricultural research organizations can be a crucial area for investment, because this information influences the motivation and guides the behavior of all the organization's members and programs. The mission and strategy of agricultural research organizations traditionally focused on producing research for major crops and livestock. In an AIS, the mission and strategy should focus on fostering innovation processes that address broader social goals, including poverty reduction; improved food security; improved health and nutrition; and sustainable management of natural resources.

Reformulating the strategy of an organization is not the job of a management consultant or senior manager. It needs to be done in a participatory fashion, involving representatives of a cross-section of management and staff, to build a strong coalition for change within the organization.

Accountability and governance

Accountability refers to the processes and practices that an organization uses to keep its stakeholders informed, take into account and balance their interests, and ensure adequate responses to their concerns (Blagescu and Young 2005) (box 4.23). In agricultural research institutes, accountability procedures usually focus on meeting the needs of funding bodies (the public treasury and donors) and pay little attention to the needs and interests of partners and intended users of research products and services (development programs, farmers, market agents, consumers). In particular, small-scale farmers have little voice and influence in decision making.

Investors can encourage agricultural research organizations to include representatives of different stakeholders, including smallholders, in their governance bodies (see module 1, TN 1) and to incorporate principles of good

Box 4.22 Strengthening Capacity in Tanzania through a Client-Oriented Approach to Managing Research and Development

Tanzania's Ministry of Agriculture and Food Security wanted to internalize a strong orientation to clients in all of its services. The ministry's Client Service Charter, adopted in 2002, required the ministry to establish service contracts with clients. The national agricultural research system adopted a Client-Oriented Research and Development Management Approach (CORDEMA) in 2003. Under the multidonor Agricultural Sector Development Programme (2006–13), public and private providers of agricultural research use the CORDEMA approach to provide more relevant and effective services. Funding for services comes from performance-based contracts and Zonal Agricultural Research and Development Funds (ZARDEFs) (competitive grants).

Organizational change involves training public researchers and their partners, who also develop a collaborative, market-focused agenda for R&D. Funding is available to plan and competitively fund collaborative R&D. Change management focuses on developing capacities in (1) human resource management, (2) financial management, (3) partnership and linkage management, (4) planning, monitoring, and evaluation, and (5) output orientation, dissemination, and information management.

The capacity development program includes all 24 research managers (national and zonal), 30 zonal CORDEMA facilitators, and more than 280 researchers and partner agencies competing for grants. It began with the development of a National Facilitation Team and subnational training teams. The curriculum was developed collaboratively by the Ministry of Agriculture, a university, a farmer networking organization, and the Royal Tropical Institute of the Netherlands.

Results and benefits. Although it is too early to verify whether agricultural innovation has increased and influenced the impact of research on development, the CORDEMA program has improved awareness that research should be managed as a performance-oriented, demand-driven service. Among other results, the program increased interaction between research, the private sector, and farmers. These "innovation triangles" benefited from research funds available through the grant program and activities related to District Agricultural Development Plans. Researchers participated in Farmer Field Schools and farmer groups, including farmer research groups. The capacity to develop effective research proposals for national and international research funds improved.

Lessons. Lessons from this capacity-strengthening program include:

- ***A comprehensive framework is needed for change management.*** It should include regular reflection based on close monitoring of the framework, institutional support, flexibility, and links between all management areas.
- ***Build awareness of the need for a client and service orientation at all levels***, among staff of the research organization at the national level, ministerial decision makers, and national policy makers. Broad, effective awareness cannot be achieved by zonal and district champions alone.
- ***Provide resources for training and sustained learning with follow-up funding.*** To maintain the momentum for change created during training, fund at least part of the subsequent organizational change activities as well as win collaborative research proposals. Otherwise the momentum is lost.
- ***Durable change in research organizations concerns not only researchers but all staff.*** It includes service units and financial administrators as well as support staff and field assistants.
- ***Trained and competent facilitators are needed nationally and locally.*** To avoid conflicts of interest, facilitation should not be combined with resource management or implementation.
- ***Monitoring organizational and institutional change is essential*** to maintain momentum and inform decision-makers.
- ***Research organizations need autonomy for full institutionalization of CORDEMA.*** In Tanzania, implementation was slowed by a hierarchy of policy makers, many of whom were not directly involved with or committed to the change process.

Sources: Personal communication from Willem Heemskerk (KIT), Ninatubu Lema (Department of Research and Training), and Zainab Semgalawe (World Bank); www.agriculture.co.tz; www.kit.nl; DRT 2008; Hawkins et al. 2009; Heemskerk et al. 2003; Lema, Schouten, and Schrader 2003; Schrader et al. 2003.

Box 4.23 Principles of Accountability

The One World Trust has formulated four principles that agricultural research organizations can apply to improve their accountability, not only to funding bodies but to key stakeholders and partners in innovation processes:

- ***Participation***. The organization should involve stakeholders in its decision-making processes and activities.
- ***Transparency***. The organization should make information about its aims and activities available to its stakeholders.
- ***Evaluation***. The organization should reflect on and learn from past experiences and provide evidence for reporting on progress and impact.
- ***Feedback management***. The organization should invite and respond to feedback, comments, and critiques of its activities.

Source: One World Trust, www.oneworldtrust.org.

accountability into the rules and procedures of their boards of trustees and other governing bodies.

Partnership policies

Although agricultural research organizations already work with partners, whose numbers will only grow as AIS approaches become mainstreamed, few agricultural research organizations have formal partnership policies, leading to frequent confusion, inefficiency, and conflict. A priority for organizational reform and for investment in this area is to support the formulation of appropriate policies for working with partners in research and innovation processes. Partnership policies need to define:

- The objectives the organization seeks by engaging in partnerships.
- The main types of partnerships employed by the organization.
- Principles for working in partnership, including decision making, communication, and sharing of costs and benefits (including intellectual property).

Since there is little experience in this area to date, the payoff to investment projects that support development of innovative partnership policies can go beyond local benefits and include valuable contributions to general knowledge. As indicated in TN 2, procedures for selecting partners and managing relationships are quite different for upstream research partnerships than they are for downstream partnerships to promote innovation. These differences need to be built into partnership policies and management systems.

Planning and evaluation systems

Planning and evaluation in agricultural research organizations are often ad hoc and externally driven. An important area for investment is the development of simple but effective institutional systems and procedures for planning, priority setting, monitoring, evaluation, and impact assessment. The goal should not be to introduce the most sophisticated methods available but to develop local institutional capacity and commitment to continue with systematic planning and evaluation after the initial investment project has been completed.

Planning and priority setting. Planning and priority setting assume even greater importance in the changing context for public agricultural research. As competitive grants come to replace core funding and block grants for agricultural research, as the goals of agricultural research organizations proliferate and become more complex, and as agricultural research organizations work with more partners, they need more systematic planning and priority-setting procedures that combine stakeholder inputs with analysis of the research costs and benefits. Module 7 in this sourcebook provides guidance on planning and assessment approaches and bodies (such as research-innovation councils, research networks, and subsector networks, platforms, or associations) that can perform planning and priority setting. The sourcebook on planning agricultural research (Gijsbers et al. 2001) and the collection on prioritizing agricultural research (Raitzer and Norton 2009) provide useful approaches and methods for planning and priority setting. The value of well-facilitated priority-setting exercises goes beyond their empirical results. By engaging partners and external stakeholders in a process of shared reflection over the validity of assumptions underpinning impact pathways, priority-setting exercises also promote collective learning and strengthen relationships among stakeholders. (Raitzer and Norton 2009, 2).

Monitoring and evaluation. As noted, agricultural research organizations typically employ monitoring and

evaluation to satisfy accountability requirements and report to external funding bodies. M&E programs are seldom designed to draw lessons from experience to improve the design and implementation of programs. Similarly, ex post impact assessment is done mainly to document results of past investments and justify future funding, rather than to learn from experience with a view to improving future programming (Kelly et al. 2008; see also module 7).

Improving M&E systems is an important area for investment. Innovative evaluation approaches are needed to:

- Articulate "theories of change" and "impact pathways" for projects and programs, with clearly defined progress markers.
- Monitor and evaluate progress and results in relation to these markers.
- Use the results to improve the design and implementation of ongoing and future research and research-related activities.

Module 7 provides guidance on M&E, and useful approaches are also presented by Raitzer and Norton (2009) and Walker et al. (2008). Issues and ideas for developing institutional evaluation systems for agricultural research organizations are discussed in the inception report for establishing a CGIAR independent evaluation arrangement (Markie and Compton 2011).

Incentives for change

Another priority for investment projects is to ensure that researchers have adequate incentives to communicate and work effectively with others—other researchers in other disciplines, development professionals, agricultural service providers, and farmers and other market chain actors—to promote agricultural innovation. There are two main ways to provide such incentives. The first is through human resource management policies and practices that reward teamwork producing practical results. The second is through competitive grant schemes for innovation projects. Without such incentives, individuals are more likely to continue producing research publications, regardless of their relevance, than to work with partners to ensure that research results are relevant and useful. Module 5 describes various approaches for implementing competitive grants schemes; box 4.24 below provides an example from Peru.

Box 4.24 Promoting Agricultural Innovation through a Competitive Funding Scheme in Peru

During the 1990s, Peru took important steps to liberalize the economy, but smallholders did not share in the benefits. Public expenditures on research represented only 0.2 percent of agricultural GDP. In 1999, the Government of Peru and the World Bank initiated a program to increase the competitiveness of the agricultural sector through the adoption of environmentally sound technologies generated and disseminated by a decentralized technology innovation system led by the private sector. The new program relied on a competitive funding scheme to promote innovation. A Fund for Technical Assistance supported extension services for producer groups and field-level adaptive research. A Strategic Services Development Fund supported research as well training for extension providers. Further support aimed at developing institutional capacity in the public sector to formulate and implement agricultural innovation policy in conjunction with the private sector. INCAGRO, the program coordination unit, resided in the Ministry of Agriculture and was administratively independent of the national agricultural research institute (INIA, Instituto Nacional de Innovación Agraria). INCAGRO's innovative features included:

- ***An approach and tools for rigorous and transparent funding*** (clear rules, an independent vetting committee, and an efficient and transparent monitoring system).
- ***Empowerment of producer groups*** to plan and carry out agricultural innovation projects and demand extension services.
- ***Use of business plans*** to estimate expected economic benefits.
- ***Cofinancing of innovation projects*** through producer groups and/or alliances.
- ***Establishment of regional offices*** with staff to facilitate and coach the producer groups and alliances.
- ***Innovation project budgets*** that include funds for hiring technical experts as innovation brokers.

(*Box continues on the following page*)

Box 4.24 Promoting Agricultural Innovation Through a Competitive Funding Scheme in Peru (continued)

- ***A database management system*** that covers all aspects of the project cycle.

Results. The program reached most regions of the country and appears to have increased the volume and quality of available extension services. The research fund also appears to have contributed to setting national priorities for research funding, developing a research agenda, strengthening researchers' capacities for innovation, strengthening producer organizations, and achieving research impacts. An ex post cost-benefit study found that a sample of 171 agricultural extension subprojects financed through INCAGRO had an average internal rate of return of 54 percent.

Not unexpectedly, establishing the competitive funding mechanism outside of INIA created resistance, and a 2008 law placed INCAGRO under INIA. Even so, INCAGRO had helped create institutional capacity in the regions, including producer organizations and public-private alliances which could compete for new cross-sectoral innovation funds established by the government. The largest fund was based on the INCAGRO model and designed by former INCAGRO staff.

A recent law requires INIA to promote the establishment of a national, pluralistic, demand-driven agricultural innovation system. Though many practical aspects of these institutional innovations remain to be worked out and the future of INIA is uncertain, the competitive funding model to promote agricultural innovations has proven effective.

Lessons. The main lessons from this experience include:

- Institutional success did not depend on designing an institutional model for agricultural innovation for the country but on sound implementation of the competitive funds themselves (in other words, the power of the model was that it created institutional capacities on the demand side).
- Despite the significant risks involved in promoting innovative approaches from outside the predominant institutional structures, specific circumstances can justify such an approach.
- Transparent policies and selection and monitoring procedures are keys to successful competitive funds. INCAGRO's operating procedures, information systems, and communication strategies were important in implementing the program effectively.
- Placing INCAGRO staff throughout the country supported national decentralization goals. Other competitive funding programs in Peru noted the strength of this decentralized approach.

Sources: Klaus Urban, FAO (personal communication); Días Avíla, Salles-Filho, and Alonso 2010; INCAGRO 2010; Fresco 2010; Vargas Winstanly 2010; López Heredia 2010; http://www.incagro.gob.pe/WebIncagro/inicio.do.
Note: More nuanced findings on the Peruvian case are presented in World Bank Independent Evaluation Group (2009). http://lnweb90.worldbank.org/oed/oeddoclib.nsf/InterLandingPagesByUNID/DB83D0B3CC8500D085257 8330014721A.

Administration and finance

As innovation processes are inherently dynamic and unpredictable, working to promote pro-poor innovation requires considerable flexibility in administrative and financial arrangements. Yet flexibility can be difficult to achieve in traditional public administrative systems, which demand considerable forward planning of activities and expenditures. Working to promote innovation processes also requires extensive work "off campus" that is difficult to monitor.

Agricultural research organizations that support or engage in pro-poor innovation may need to adjust their administrative and financial procedures to gain more flexibility and responsiveness to unanticipated needs and opportunities. Decentralizing decision making to units with regional, thematic, or value chain mandates can help bring administration and finance "closer to the field." Another option is to establish semiautonomous bodies (such as foundations) that may use administrative and accounting procedures that are simpler and more flexible than those which are common in the national agricultural research organization within the public sector. PROINPA in Bolivia is a successful example of a foundation dedicated to agricultural research and development (Gandarillas et al. 2007).[2]

Organizational arrangements

By themselves, changes in organizational structure are unlikely to produce the behavioral changes for agricultural research organizations to promote innovation more effectively,

although some new organizational arrangements can be useful. They include specialized units responsible for spanning institutional boundaries and for innovation brokering.

Boundary management. Working across institutional boundaries is essential for the effective operation of innovation systems. The development of units responsible for managing interorganizational relations and partnerships is a new and promising area for investment in agricultural research for development. Agricultural research organizations have tended to partner exclusively with other research entities, but they require a more diverse set of partners to promote innovation. The idea is not to partner for the sake of partnering, but to partner when and where it is essential to achieve impact. One way to achieve this outcome is for specialized bodies to manage communication and relations between agricultural research organizations and other key stakeholders in innovation processes.

It is essential that boundary management units have lines of responsibility and accountability to groups on both sides of the organizational boundary and not report only to the agricultural research organization (Cash et al. 2003:8086). Because the benefits of boundary management units may accrue to several organizations, there are limited incentives for any one organization to take the initiative and bear the full costs. For this reason, boundary management constitutes an important area for investment by national governments or external donors that wish to promote pro-poor innovation.

Innovation brokerage. The establishment of sustainable innovation brokerage units (see module 3, TN4) is another potentially high-payoff area for public investment. Innovation brokerage is less concerned with linking researchers in a research organization to external stakeholders than with fostering innovation processes and bringing in needed research products or services from wherever they reside. Brokering innovation processes is related to boundary management but focuses on articulating demands for research products and services, forming stakeholder networks for innovation, and managing innovation processes (Klerkx, Hall, and Leeuwis 2009, 413). In performing these functions, innovation brokers enable other organizations to work together and innovate. These functions may be performed by independent bodies or by units within or attached to agricultural research organizations. Innovation brokerage units have played useful roles in stimulating and facilitating innovation processes, but the participants (particularly small-scale farmers and market agents) have been reluctant to cover the full cost of their operations—hence the key role for public investment.

Looking beyond the agricultural research organization

As the previous paragraphs indicate, the changes required for agricultural research organizations to contribute more productively to innovation systems are not all within agricultural research organizations themselves. To establish legitimacy and trust, it might be necessary to assign innovation brokerage functions to organizations that are independent from the main participants in agricultural innovation processes. Peru's competitive grant scheme (see also module 5, TN2) to promote pro-poor innovation was established in the Ministry of Agriculture and operated independently from the national research institute (box 4.24).

POTENTIAL BENEFITS

Effective capacity development and change management in the areas highlighted previously are essential for implementing the approaches recommended in other thematic notes of this module (linkages, public-private partnerships, regional programs, and codesign of new technologies). The benefits that can be expected from these measures are described in the other thematic notes and innovative activity profiles. Box 4.22 describes the likely direct benefits from capacity strengthening (CORDEMA, Tanzania), box 4.24 describes benefits from changes in incentive and funding schemes (INCAGRO, Peru), and box 4.25 describes benefits arising from sweeping organizational change (NAIP, India).[3]

Given the complex nature of organizational change and the emergent nature of the results, it is notoriously difficult to evaluate and measure the benefits of organizational change processes. The types of benefits that may be expected to result from well-managed organizational change processes carried out under favorable conditions can be summarized as follows:

- Greater awareness on the part of researchers of the importance of working in coalitions with other stakeholders in innovation processes.
- Improved relations between agricultural researchers, policy makers, and economic actors (producers, market agents, consumers).
- Changes in the research portfolio to emphasize research with higher short-term potential impact.

Box 4.25 Organizational and Institutional Changes through a National Innovation Project in India

The National Agricultural Innovation Project (NAIP) is a major reform initiative implemented over six years (2006–12) by the Indian Council of Agricultural Research (ICAR), with funding from the Government of India and the World Bank. NAIP seeks to accelerate the collaborative development and application of agricultural innovations involving public research organizations, farmers, the private sector, and other stakeholders. ICAR is responsible for catalyzing institutional change through initiatives in the areas of policy, strategy, governance, financial management, and accountability mechanisms and through a massive human resource development initiative. NAIP has established 51 market-oriented collaborative research alliances of public, private, and nongovernmental organizations as well as farmer groups and international organizations. Applied research focuses on technological innovation in disadvantaged rural areas. Basic/strategic research focuses on such areas as biotechnology, nanotechnology, and postharvest technology. Nearly 60 percent of the research funding provided under NAIP is channeled through competitive grants to research partnerships involving public, private, and nongovernmental organizations.

ICAR faced several challenges in implementing NAIP because of the scale of the project, its broad vision of joint technology development by public and private organizations, and the formation of coalitions with a wide range of partners. It addressed these challenges through extensive awareness campaigns prior to initiating the grant program; a helpdesk to support potential project partners; a sophisticated monitoring and evaluation system; and partnership guidelines that provide for management of intellectual property and sharing of capital expenditures.

Results. The project's main results and benefits relate to organizational and institutional change. NAIP gave public sector scientists direct experience of the challenges involved in partnering with a wide range of nonconventional partners critical for innovation. Lessons from this experience have not been systematically documented to date, but interactions with scientists involved in NAIP suggest the following organizational and institutional outcomes:

- Greater appreciation of the range of skills needed for innovation and the complementary roles of diverse partners.
- The importance of broad consultations with a range of actors before conceiving project ideas and developing concept notes.
- Better understanding of how to develop large-scale projects with multiple partners, which can achieve significant impact.
- More frequent project reviews with partners at regular intervals.
- Improved facilitation of partnerships and brokering of innovation processes.
- Increased confidence of scientists to work with private and nongovernmental organizations.

Lessons. Externally funded programs such as NAIP provide useful opportunities for researchers to learn how to work with the wide range of actors needed for innovation, but such partnerships are challenging for organizations with a long history of working in isolation. Aspects of research project management (review, financing, procurement, and so forth) in public organizations must change to provide the support and flexibility for partnerships to flourish. Systematic assessment of and reflection on the experience gained through NAIP will yield valuable insights to further reform the national research system and enable good practices fostered by NAIP to take root and multiply.

Sources: Rasheed Sulaiman V, Centre for Research on Innovation and Science Policy (CRISP), Hyderabad (personal communication); Mruthyunjaya 2010; NAIP 2010.

- Greater influence on policy processes.
- Better mobilization of resources to support research and innovation processes.
- Improved uptake and use of research results.
- Expanded socioeconomic and environmental benefits.

POLICY ISSUES

Organizational change directed at enabling public research institutions to participate more fully in the innovation system must give particular attention to three policy issues. They include gender and equity issues, the national

commitment to change, and the possibility that broader reforms may be needed to support innovation.

Dealing with gender and equity issues in organizational change

Investment projects are convenient mechanisms for supporting agricultural research organizations in addressing important and complex issues, such as gender, equity, and empowering poor people. In fact, having access to external resources and legitimacy can often be crucial for agricultural research organizations to begin working on these issues. Gender and empowerment issues are especially important for pro-poor agricultural innovation, because women feature so prominently in the target population. Additionally, empowering farmers and strengthening their organizations may be essential for the success of multistakeholder processes. The *Gender in Agriculture Sourcebook* (World Bank, FAO, and IFAD 2009) presents principles and approaches for introducing gender work into agricultural research organizations.

Key role of national leadership and commitment to change

In any organizational change effort, it is important to keep in mind that while external agents can motivate and support change, local commitment and leadership are essential for the initiative to succeed. A key role for external change agents is to assess and cultivate local commitment and leadership among policy makers for the organizational changes that will enable the agricultural research organization to promote agricultural innovation more effectively. The local commitment of resources to the change process is a key indicator of commitment. Where local leadership and financial commitments for change are not forthcoming, *the appropriate decision might be to not proceed with the investment project*.

Need for broader public sector reform

As public agricultural research organizations are part of larger public administrative systems, successful efforts to introduce changes needed to perform more effectively in the AIS may require changes in the broader system of public administration. For this reason, modernizing agricultural research organizations is best viewed as part of a broader initiative of public sector reform. A recent evaluation of World Bank experiences with public sector reform summarizes useful lessons on what works and why (World Bank Independent Evaluation Group 2008).

LESSONS AND RECOMMENDATIONS

A number of lessons and recommendations provide guidance for initiating organizational change that makes it possible for public research organizations to participate more fully in the AIS, especially as proponents of pro-poor innovation. They are discussed in the sections that follow.

Investment projects may be useful vehicles for initiating and mainstreaming changes

Organizational change efforts are fraught with difficulties and often lose momentum or veer off course. Participants within the organizations concerned may lack or lose legitimacy and can benefit from external support and guidance. For these reasons, it is useful to organize organizational change efforts as "institutional projects" with defined leadership, goals, capacity development strategies, budgets, timelines, evaluation procedures, and lines of accountability. In this sense, investment projects play a useful role in organizational change. One thing to keep in mind, however, is that while external agents can play useful roles in supporting and legitimizing change processes, leadership for organizational change must come from within the organization. Experience shows that it is easier to introduce changes through externally funded projects than to mainstream changes in agricultural research organizations. On the other hand, a large-scale project such as NAIP (box 4.25), which has allowed ICAR to develop, fund, and operate a large number of consortia, can help change efforts to reach a critical mass and become embedded in organizational routines. From the very start of a project that aims to promote organizational change, it is important to develop strategies for mainstreaming innovations.

Adaptive management Is needed for organizational change projects

Change processes are highly dynamic and inherently unpredictable. For this reason, it is inappropriate to attempt to plan organizational change projects in great detail and then implement them rigidly as planned. Adaptive management is needed for change projects, and project managers in external funding bodies may need to be creative to maintain the required accountability without imposing undue

limitations on the local teams who need to spearhead organizational change.

Developing internal capacity for organizational innovation is crucial for agricultural research organizations

To keep up with rapid alterations in the social, economic, environmental, and technological landscape, agricultural research organizations need the capacity to adjust their policies, management practices, and structures as conditions change. The continuing success of an agricultural research organization will depend on its capacity for organizational innovation. Agricultural research organizations often fail to develop this capacity because of the lack of continuity in policies and leadership in agricultural research.

Bringing about cultural change takes time and multipronged approaches

Organizational changes (institutional change) may take considerable time to take root; withdrawing support too quickly can jeopardize the sustainability of results. Change agents and donors need to keep this in mind. In many cases, the changes that are needed to allow agricultural research organizations to contribute more effectively to pro-poor innovation amount to a significant shift in culture, and organizational cultures are notoriously resistant to change.

Past organizational change has focused on formal structural issues—position titles, reporting relationships, and the titles and boundaries of various organizational units—yet day-to-day activities are more often influenced by formal and informal rules and norms enshrined in an organization's "standard operating procedures." Deep changes in organizations also produce losers as well as winners, and the potential losers often fight long and hard to retain their status and privileges. The high rate of turnover of managers and researchers in many agricultural research organizations presents another important challenge. Innovation system approaches are seldom taught in agricultural universities and must be introduced to new staff members when they join the organization. If staff turnover is high, these "new approaches" may need to be introduced again and again.

Strengthening capacity needs to be skillfully meshed with managing organizational change

Public organizations are often perceived as resisting change. Many seek capacity—the ability to get things done—but not change—a different way of doing old and new things. In working with agricultural research organizations, it is important to understand which aspects of the status quo are amenable to change and which ones are not, so that an appropriate capacity development initiative can be designed and appropriate alliances can be forged with progressive elements in agricultural research organizations, NGOs, the policy community, and the private sector. The case of EMBRAPA in Brazil illustrates how an agricultural research organization can successfully embrace both capacity development and organizational change.