

# Methods for Organizational Assessments in Agricultural Innovation Systems

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## SYNOPSIS

This note presents methods that can be used to assess individual organizations within the innovation system, such as agricultural research and extension organizations. These assessments are not only useful diagnostic tools for planning AIS interventions but important components of monitoring, evaluating, and assessing the impact of AIS interventions. If time and resources are limited, assessments can be based on secondary data and expert interviews. More detailed assessments may involve surveys among staff of organizations in the AIS, farm household surveys, and participatory methods. From an implementation and policy perspective, it is important to create demand for assessment data to achieve sustainability.

## BACKGROUND AND CONTEXT FOR INVESTMENT

Investments to improve the overall performance of an AIS often include components to improve the functioning of individual organizations, often in conjunction with components to improve the coordination between organizations and to create an enabling environment for them to innovate. For planning, managing, and evaluating investment projects to support agricultural innovation, it is essential to have diagnostic tools for assessing the organizations within the system. This note describes such tools and methods (methods for assessing an AIS in its entirety are discussed in TN 1).

Assessments can support AIS investment projects in the following ways:

- **Diagnostic assessments (*ex ante*).** In the planning phase of development interventions, assessments can be used to identify the strengths and weaknesses of the organizations involved in an AIS, to identify entry points for reforms, and to assess the feasibility and expected costs and benefits of planned investments.

- **Monitoring.** During the execution of development interventions, assessments are needed to monitor changes over time. In particular, assessments can help to reveal whether organizational reforms are proceeding as intended.
- **Evaluation and impact assessment.** After completing an intervention, such as a reform of a country's research organization, assessments are required to evaluate the effectiveness of the investment, to quantify its impact, and to derive lessons for future interventions.

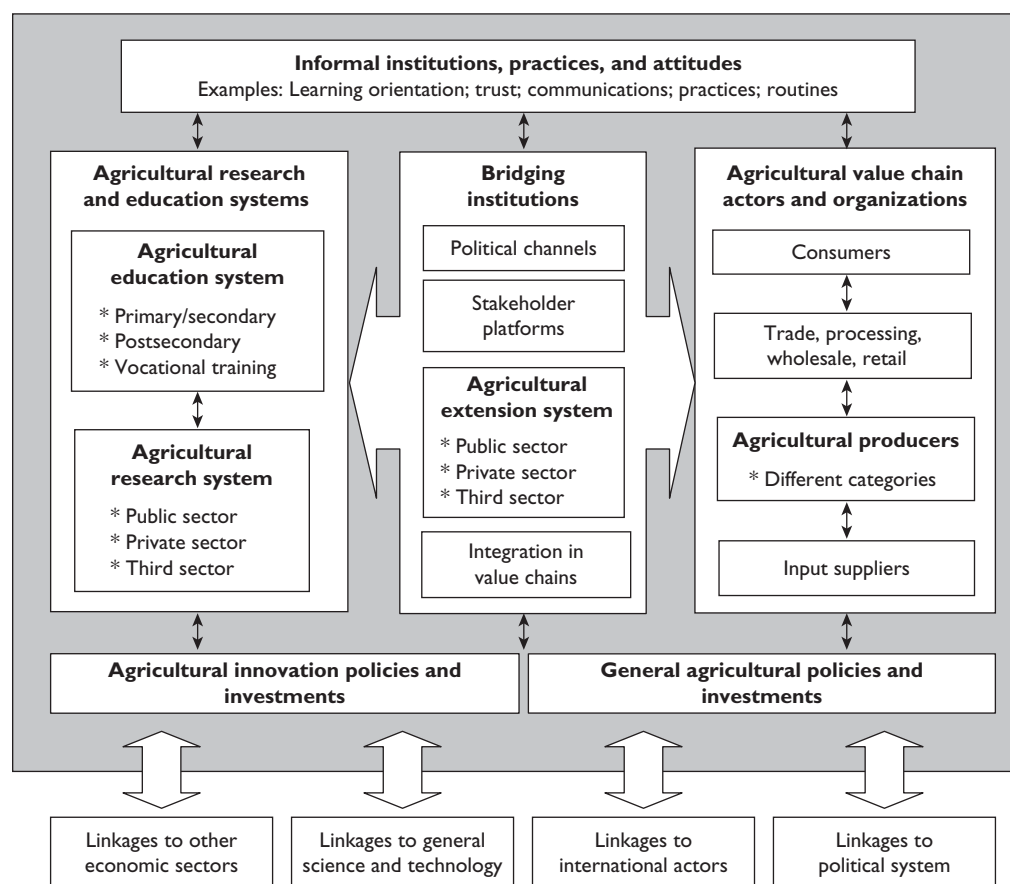
Since the AIS approach is comparatively new, project managers face a lack of clarity about the methods that can be used for these purposes. Existing methods for organizational assessments can be adjusted, however, to take the role of organizations within the innovation system into account. This note describes a set of assessment methods and gives specific advice on how they can be used in assessing investment projects that reflect an AIS approach.

## THE ASSESSMENT FRAMEWORK, OBJECTIVES, AND REFERENCE SITUATION

Since an AIS is a theoretical construct, it is important to use an *assessment framework* that defines the elements and relations of the AIS in which a given organization is to be assessed. Several assessment frameworks are available (see TN 1). This note uses the framework developed for the World Bank by Spielman and Birner (2008) for illustration, because it identifies the types of organizations involved in an AIS and their relations (figure 7.1). Although this note focuses on one framework, the methods discussed can be applied to other assessment frameworks.

In the context of investment projects, assessments may be carried out (1) at the level of the AIS as a whole, (2) at the level of the innovation system for specific commodities or value chains, or (3) at the level of different organizations

Figure 7.1 Conceptual Diagram of a National Agricultural Innovation System



Source: Spielman and Birner 2008.

within the innovation system (organizational assessments). In conducting an assessment at the organizational level, a primary task is to *clarify the objectives of the assessment*. Box 7.4 presents a number of questions related to the performance of an organization within an AIS. The questions illustrate the range of objectives that an organizational assessment may need to consider to gain a comprehensive understanding of that performance.

In addition to clarifying the objectives of an assessment, it is also important to identify who will use the results. Assessments may be carried out by organizations that fund, or intend to fund, organizations within the innovation system. However, assessment results need to be fed back to the management of the organizations involved to stimulate institutional learning and change. Moreover, as discussed below, assessments benefit from the involvement of staff members as well as users of innovation-related services.

Another primary task is to *select the standard or reference situation* against which an organization's performance

within the innovation system can be assessed. The following options may be considered:

- **Benchmarking.** One approach is to compare the organizations within the system in a particular country with those of other countries, typically countries in the same region or countries that are otherwise comparable. If quantitative indicators are used, this approach is known as "benchmarking."
- **Changes over time.** Another approach (which can be combined with benchmarking) is to compare the performance of the organization at different points in time and determine whether it improved or deteriorated.
- **Policy goals, organizational objectives, or standards.** A third approach is to compare organizations against goals that have been set by policy makers, by managers of the respective organization, or by another entity, such as a donor organization or certification or accreditation agency.

#### Box 7.4 Questions That Illustrate the Range of Objectives in an Organizational Assessment

A number of questions illustrate the varied objectives of an assessment to understand how well a certain organization—for example, the public research institute responsible for a certain commodity—performs within an AIS:

- What internal management factors influence the organization's performance?
- Which factors in the organization's environment influence its performance?
- What are the most promising types of interventions to improve the organization's performance and its contribution to the innovation system?
- Is the evolving nature of the agricultural sector placing new demands on the organization?
- What is the role of the organization within the innovation system? Is this role still relevant? How may it need to change?
- Are the organization's patterns of partnership and collaboration sufficient to maintain its relevance in the evolving agricultural sector? What new linkages might be required?
- What learning-based mechanisms for enhancing organizational performance are in place?
- How can the organization's contribution to the overall innovation system be improved?

Source: Author.

### SELECTING ASSESSMENT METHODS AND OBTAINING DATA

Planners, analysts, researchers, and evaluators can use a variety of methods to assess organizations within an innovation system. Assessments may be based on quantitative or qualitative methods and may be derived from different disciplinary backgrounds, such as economics and its branches (public economics and New Institutional Economics, for example), organizational sociology, public administration, and political science. The assessment can call upon existing data and statistics to develop a picture of the national context and the main contours of the innovation system in which the organization is situated. Data may also be available on the organization's performance in relation to specific indicators, such as the number of staff publications,

quantities of inputs distributed, numbers of trainees or students receiving instruction, and so on. The assessment will need to generate much of its own information, however, and much of it will be qualitative. Examples include information on the organization's patterns and strength of collaboration with other organizations in the AIS, the relevance of the organization's roles, and the existence of learning-based performance management arrangements.

#### Criteria for selecting assessment methods

Before describing assessment methods in detail, it is useful to consider the criteria that influence the choice of an appropriate method:

- **The scope of the assessment.** Even though the assessment is looking at the performance of an individual organization, from an innovation systems perspective it is important to take into account specific linkages and coordination mechanisms.
- **The existing data and knowledge.** The data and knowledge about an organization that are available (and accessible) have a large influence on the choice of the assessment method and the amount of primary data that must be collected. Organizations in the innovation system for agriculture, such as extension organizations, typically have their own reporting systems. It is helpful to examine whether the data generated from such reporting systems will be useful for the assessment.
- **The time and resources available.** The choice of an assessment method is also determined by the time and the resources available for the assessment. Ideally, there should be a match between the purpose of the assessment—for example, to determine the level of the planned investment—and the time and resources available for ex ante, ongoing, and ex post assessments.

#### The role of preliminary AIS assessments

Before embarking on an organizational assessment, it is also useful to develop an understanding of the AIS in which the organization operates. It is important to keep these preliminary assessments of the AIS (mapping the AIS and reviewing expert opinion about the AIS) in proportion to the main task that lies ahead, which is the organizational assessment. These system assessments provide context, “locate” an organization within the wider innovation system, and highlight its relationships throughout the system. A further function of these system assessments is that they engage system stakeholders

in a dialogue about the role and performance of a specific organization with the innovation system.

**MAPPING THE AIS.** Even if an assessment ultimately focuses on only one organization within an AIS, an organizational mapping of the AIS as a whole is useful to gain a clear understanding of the environment in which the focus organization operates (for example, it can help to answer some of the questions raised in box 7.4). The outcome of organizational mapping is a diagram that displays the essential organizations in the innovation system and their relations to each other. The mapping process may take different forms, but it needs to be based on an assessment framework. If time and resources are limited, the major organization within the AIS usually can be identified by compiling information from the documents and literature available and interviewing experts based on a semistructured questionnaire.

For example, if the goal is to map the national innovation system for dairy production and the assessment framework displayed in figure 7.1 is used, the analyst will have to compile information on the following questions:

- Which research organizations deal with dairy production?
- Which education organizations provide training for dairy production at different levels (diploma, graduate, postgraduate)?
- Which extension organizations provide advice on dairy production?
- Who are the major players in the value chain (dairy processing companies, for example)?
- Which organizations of dairy farmers, such as dairy cooperatives, exist?

The analyst can construct a diagram based on the information collected and use it to collect further information on innovation system actors and organizations, especially their roles and interactions. Some mapping techniques make it possible to visualize the innovation system during the interview process; for an example, see the description of Net-Map in IAP 2.

**CONDUCTING EXPERT SURVEYS.** The collection of information from experts is useful for gathering valuable information about an innovation system in a comparatively short period. It allows the analyst to draw on the comprehensive knowledge gained by professionals who have long experience in the AIS. The list of experts to interview can be derived during a mapping exercise (discussed

previously) and by using the “snowball system”—that is, by asking respondents to identify other persons who should be interviewed.

Information can be collected from experts in different ways. One alternative is to conduct semistructured interviews, using an interview guideline. It is also possible to use a questionnaire for an expert survey and ask respondents to score the various actors in the innovation system on a scale (of one to four, for example) regarding their effectiveness, responsiveness, accountability, organizational performance, and other criteria. Even though the scoring results will reflect a subjective assessment of the actors involved, this approach yields useful information. Similarly, governance indicators are often based on expert assessments, and if a standardized approach is applied, such data can be used as indicators to monitor changes over time or make comparisons across countries. For an example of how an expert survey was used in Ethiopia, see Spielman and Kelemework (2009).

## **METHODS FOR ASSESSING ORGANIZATIONS WITHIN AN INNOVATION SYSTEM**

This section introduces methods that can be used to assess a specific organization within an AIS, such as an agricultural research institute, agricultural training center, or agricultural extension organization. The methods include staff and farm household surveys as well as methods derived from business administration to assess organizational performance.

### **Organizational performance assessment**

The business administration literature describes a wide range of methods that organizations can use to assess and manage their performance. One approach that is particularly relevant for innovation systems is the Organizational Performance Assessment (OPAS), developed for agricultural research institutes by the former International Service for National Agricultural Research (ISNAR) (Peterson, Gijsbers, and Wilks 2003).

OPAS was first tested in 1996–97 at the research institutes of the Council for Scientific and Industrial Research (CSIR) in Ghana and later adapted and used by national research organizations in Benin (Institut National des Recherches Agricoles du Bénin) and Uganda (National Agricultural Research Organisation) (Peterson, Gijsbers, and Wilks 2003, 8).

In OPAS, organizational performance is defined as “the ability of an organization to use its resources efficiently and

to produce outputs that are consistent with its objectives and relevant for its users” (Peterson, Gijsbers, and Wilks 2003, 1). Box 7.5 displays the elements of OPAS and explains the relations between them.

OPAS has been designed for assessments conducted by managers and staff of the respective research organization with the assistance of one or two external facilitators. The assessment has two major elements: an output assessment and

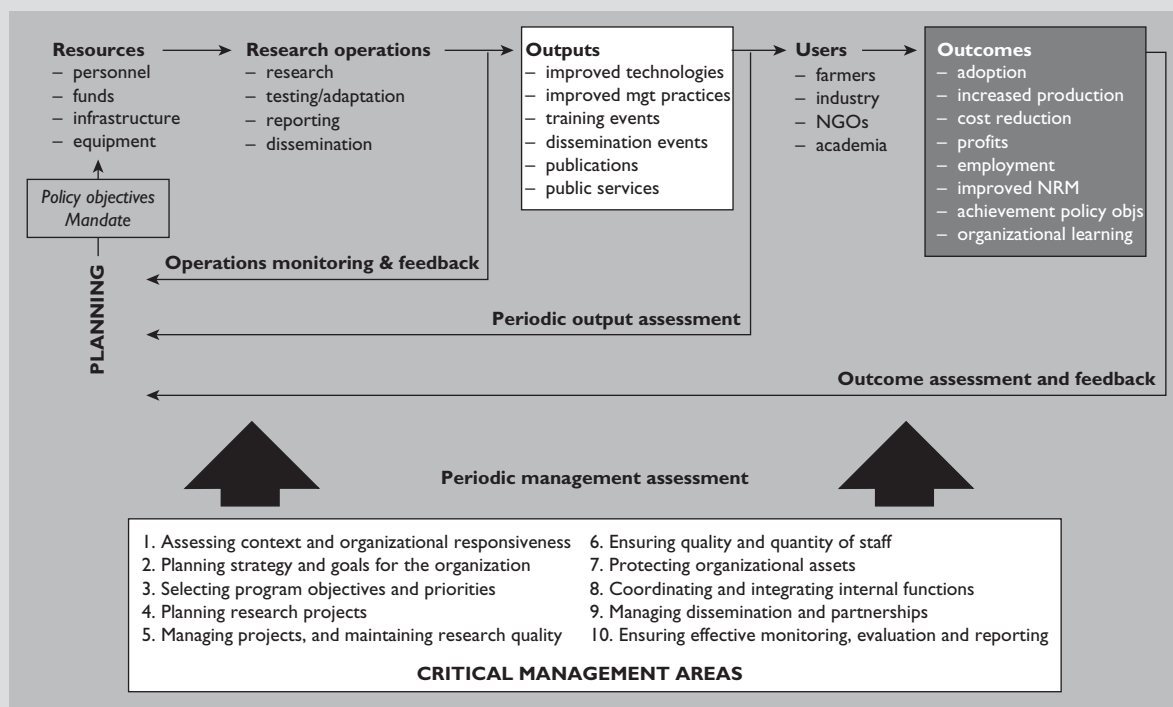
a management assessment. Each component follows a number of clearly defined steps. Scores (which may be weighted according to organizational priorities) are applied, making it possible to monitor progress over time. An assessment of the output trends of research organizations shows that the organization considerably increased its public services such as dissemination and training events but that its technology output fell (Peterson, Gijsbers, and Wilks 2003, 18).

### Box 7.5 Elements of the Organizational Performance Assessment

Agricultural research organizations use **resources** and inputs (funds, personnel, equipment, and facilities) to undertake their **research operations** in order to produce **outputs** (agricultural technologies and services) for the benefit of farmers, agro-industries, and other users. The **outcomes** (or consequences) of adopting or applying these outputs are measured by their effects, positive or negative, on such factors as production costs, yields, and use of natural resources. In this sequence of events, which is illustrated in the upper part of the diagram, **performance assessment and**

**feedback mechanisms** are required at different levels to ensure that research organizations plan their resources efficiently and produce relevant and useful outputs. . . . An underlying assumption in organizational performance is driven by a number of **critical management factors**, as indicated in the lower part of the diagram. Through a **periodic assessment** of these factors, managers can determine if appropriate mechanisms and procedures are in place and functioning, and can take steps to correct management deficiencies that contribute to poor (or lower) organizational performance.

Figure B7.5 Diagram of Organizational Performance Assessment



Source: Reproduced directly from Peterson, Gijsbers, and Wilks 2003, 6.

Box 7.6 displays sample questions for human resource management (management area 6 in figure B7.5 in box 7.5). As in the output assessment, scores can be applied to each question, which makes it possible to monitor changes over time.

From an innovation systems perspective, it is useful to expand the OPAS approach and include indicators that capture the relation of the organization to be evaluated with other organizations in the AIS, both at the level of the output assessment and the level of the management assessment. For example, at the output level, research organizations may include scores for collaboration with agricultural extension and education organizations, and vice versa. At the management level, critical management area 9 already refers to “managing dissemination and partnerships” (critical management areas are listed in figure B7.5, box 7.5). Indicators in this area may be expanded to include all types of partners in the innovation system, as indicated in figure 7.1. Such data could then also be used as measurable indicators of the performance of different AIS members. These indicators could also be considered in external evaluations, which may increase the incentives for organizations not only to improve their individual performance but to improve their performance as a member of a wider innovation system.

To reflect more of an innovation systems perspective, the OPAS can also be modified in the area of learning-based performance management. Successful organizations continuously update and reframe their relationships with the rest

of the system and the competencies, roles, and ways of working that the wider system demands. Organizations use a suite of methods, referred to as “institutional and organizational learning” (see also module 1 and TN 4 in module 4) to enable this continuous adaptation and updating to take place (box 7.7).

### Surveys among the staff of organizations

Another organizational assessment method, which can be combined with OPAS, is a survey of an organization’s staff members. These surveys are particularly useful in organizations that have large numbers of field staff, such as public agricultural extension systems. They can provide in-depth information about the organization’s capacity and staff incentives, but they need to be carefully planned, as they require genuine support from management. As in other surveys, the anonymity of the respondents has to be ensured, and interviewers have to be careful to create an atmosphere in which respondents are willing to talk freely about their assessments, especially when sensitive issues are raised, such as issues of political interference. Moreover, it is important to pre-test the survey instrument with a group of respondents who reflect the diversity of the AIS. This step is important not only to test the suitability of the instrument but also to build confidence among staff. In designing the questionnaire, the trade-off between simplicity and capturing all relevant details must be considered.

#### Box 7.6 Sample Question Set for Assessing Human Resource Management Performance

- To what extent does the organization maintain and update staff information (e.g., biodata, publications, projects)?
- To what extent does the organization plan and update its staffing, recruitment, and training requirements?
- How effectively are staffing, recruitment, and training plans linked to program and project needs?
- How effective are selection procedures (for management, scientific, and support posts) in terms of objectivity and transparency?
- To what extent is training based on merit and on organization and program objectives?
- How effective are mechanisms to promote a good working environment and high staff morale?
- How effective is the performance-evaluation process for research staff?
- How effective is the performance-evaluation process for nonresearch (management, administrative, and support) staff?
- How effective are reward and sanction processes, in terms of motivating staff?
- How effectively does the organization compete with the private sector in providing salaries and benefits that attract and retain quality staff?

Source: Reproduced directly from Peterson, Gijsbers, and Wilks 2003, 22.



## Box 7.7 Organizational Learning and Institutional Change

**Institutional or organizational learning** is the deliberate and ongoing process in which information from research and evaluation activities and outcomes feeds into a reflective analysis of what has worked and not worked in an institution. In turn, the lessons from such reflective analysis inform decisions about future directions for the organization. Leadership, incentives, resources, and flexibility within the organization's routines are required for this process to work.

The Institutional Learning and Change initiative defines a **learning organization** as an organization with a culture that supports this kind of analysis and change. The term "institution" is used instead of "organization" when referring to the learning process that takes place across organizations and among a diverse set of people involved in research and evalua-

tion activities. Shambu Prasad, Laxmi, and Wani discuss an "unusual coalition" between an international research center (the International Crops Research Institute for the Semi-Arid Tropics) and a private Indian donor (Tata), in which the research center established new institutional mechanisms, both internal and external. The internal mechanisms involved new ways of organizing work among site coordinators and activity coordinators who have to seek input from each other. External mechanisms included a new steering committee as well as state and district committees with multiple stakeholders who were engaged in the use of new tools such as actor-linkage mapping. Module 3 examines additional cases of organizational learning and institutional change.

*Source:* Author; Watts et al. 2003; Shambu Prasad, Laxmi, and Wani 2006.

In designing staff surveys, it is also useful to take gender into account. For example, a survey may include specific questions on career opportunities and constraints for female staff. Moreover, the data for male and female respondents can be analyzed separately. Box 7.8 describes the constraints to agricultural innovation that were identified in a survey of agricultural extension agents in six districts of Ghana. (See IAP 3 for an example from Peru.)

### Farm household surveys

For organizations that deal directly with farmers, such as agricultural extension organizations, surveys among farmers—the clients of the organization—are essential for an ultimate assessment of organizational performance. At the same time, farm household surveys can provide important information about the performance of the AIS as a whole, which means that they can also form an important component of a system-level assessment. Farm household surveys are the most expensive and time-consuming approach to collecting data about agricultural innovation, but they provide particularly relevant information, especially if secondary data on farm households that capture aspects of agricultural innovation are not available. Box 7.8 describes how this assessment method was used in Ghana.

If a survey that includes agricultural households is planned for another purpose, it may be possible to include questions on the performance of the organization to be evaluated and on other aspects of agricultural innovation. If a survey is planned specifically to collect information on the assessment of an organization in the AIS, it will be useful to include questions on outcome indicators, such as the adoption of innovations, as well as questions on household access to the services provided by the organization (such as extension services) as well as household satisfaction with those services. It may also be useful to include information on other aspects of the innovation system, such as access to agricultural inputs and complementary services as well as marketing opportunities. It will often be useful to collect such data separately from male-headed households, female-headed households, and female spouses in male-headed households.

When farm household surveys are not possible and secondary data are limited, Participatory or Rapid Rural Appraisal methods will be useful, since assessments of organizations in the AIS, or of the system as a whole, should take the farmers' perspective into account.

### POTENTIAL BENEFITS

The key challenge facing agricultural research institutes, development organizations, and enterprises is to maintain

To assess the performance of the organizations providing agricultural extension services in Ghana, a team from the University of Ghana–Legon and the International Food Policy Research Institute carried out an assessment that involved surveys among agricultural extension providers (70 interviewees) as well as agricultural household heads (1,168) and their spouses (613).

The assessment showed that the public extension service remained the main provider of extension information (an important finding, given the crucial role of advisory services in agricultural innovation). Only one respondent had received a visit from a nongovernment organization providing extension services, and nongovernmental organizations organized only 4 percent of group meetings on extension.

The assessment also showed that female household heads as well as female spouses in male-headed households had very low access to agricultural extension services even though women play an important role in Ghana's smallholder-based agriculture, and even though Ghana has a special program for Women in Agricultural Development.

The survey also showed that less than 12 percent of household heads and less than 6 percent of spouses had adopted a new technology in the previous two years. The implication is that considerable constraints prevent male and female farmers from innovating.

The survey among agricultural extension agents revealed that female extension agents were more effective in reaching female farmers than male extension agents, but only 14 percent of extension agents were women. Extension agents as a group identified the lack of transport and access to credit as major constraints on farmers (see the figure). An inadequate number of extension staff was seen as the least important constraint.

The assessment revealed management problems as well. Extension agents had limited incentives to perform, priorities and targets were not set, and training opportunities were limited. The assessment identified entry points for interventions to improve the performance of this key organization in Ghana's agricultural innovation system.

Source: World Bank and IFPRI 2010.

their relevance and performance in the rapidly evolving agricultural sector. Organizational assessments provide a way of investigating the capacities and outcomes of an organization and identifying ways of strengthening different aspects of capacity to improve relevance and performance. These actions improve the effectiveness of both public and private investments in the development of organizations within an AIS. If similar assessment tools are used in different countries, additional benefits can be realized from cross-country comparisons and benchmarking.

## POLICY ISSUES

Policy issues related to organizational assessments range from ensuring that assessments are properly resourced, that local capacity to conduct assessments is developed and sustained, that assessments reflect environmental and social considerations, and that wide support develops for using the results to improve performance. Policy responses to these concerns include the following:

- **Commit resources to organizational assessment.** The benefits of organizational assessments are realized only if they are conducted on a regular basis to maintain an organization's relevance in the AIS and to monitor progress over time. Conducting assessments regularly can be a considerable challenge, especially if organizations rely on external donors to fund this activity.
- **Build local ownership for assessment.** The sustainability of an assessment regime can be improved by generating buy-in from local organizations, such as the ministries in charge of agriculture, science, and technology.
- **Build local capacity for assessment.** The sustainability of an assessment regime can also be improved by building and institutionalizing local capacity for conducting organizational assessments. It may also be useful to involve regional networks of agricultural research organizations, such as the Forum for Agricultural Research in Africa (FARA), or regional economic communities, such as the Economic Community of West African States (ECOWAS), in the use of assessment



tools, especially if benchmarking approaches are used (see the final point).

- **Emphasize social and environmental considerations in designing assessment methods.** For example, assessment methods can be designed to capture the extent to which individual organizations in the system are biased towards large-scale farmers. As shown in box 7.8, assessment methods are also useful to assess the gender dimensions of the innovation system.
- **Create regional guidelines.** International and regional organizations may take on the role of developing guidelines for harmonizing assessments and publishing results, especially if benchmarking approaches are used.

## IMPLEMENTATION ISSUES

To some extent, implementation issues for organizational assessments reflect the policy issues just mentioned:

- **Timeliness.** It is important to conduct organizational assessments regularly and in a timely fashion, as they are a key mechanism for organizations to maintain their relevance within an innovation system. It is preferable to use frequent organizational assessments to encourage continuous incremental change rather than to rely on infrequent major organizational reforms (see, for example, the CGIAR as an example of major reform; [www.cgiar.org](http://www.cgiar.org)).
- **Resource implications.** As with all assessments, in organizational assessments carefully consider the resources and capacity required to undertake the assessment. Assessments involving household surveys are particularly resource-intensive. Depending on the country and region, the costs may range from US\$25 to US\$120 per household. Yet certain types of data about an organization's performance in the innovation system can be collected only through surveys, such as data on male and female farmers' access to extension services.
- **Inclusiveness.** To create "buy-in," it is important to generate "demand" for assessment data at the organizational, national, and regional level. It may be useful, for example, to work with parliamentary committees in charge of agriculture or science and technology. In democratic systems, such committees may have considerable latitude to use assessment tools to hold the government accountable for the performance of an innovation system and its organizations. Likewise, it may be useful to involve farmer organizations, which can also play an important role in creating accountability.
- **Choosing local partners for assessments.** As indicated, it is essential to build local capacity for assessments. Potential partners may include analytical units within the ministries in charge of agriculture or science and technology, university departments that work in this field, as well as think tanks and local consulting companies.