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Tracking Results in Agriculture and Rural Development

in Less-Than-Ideal Conditions:

A Sourcebook of Indicators for Monitoring and Evaluation

Abstract

The paper is reporting the development of a handbook on monitoring and evaluation of development projects and programmes in agriculture and rural development. The book entitled "*Tracking results in agriculture and rural development in less-than-ideal conditions: A sourcebook of indicators for monitoring and evaluation*" has been prepared with a collaborative effort of FAO and World Bank under the umbrella of Global Donor Platform for Rural Development (GDPRD). The paper presents the need and background of the Sourcebook, the process followed for preparing it, a summary of the book, and the list of Priority Indicators identified for international comparison, and an extended list of indicators to serve as menu for practitioners. Related emerging issues and the key messages from the book are also mentioned.

Background

At the UN Conference on Financing for Development, held in Monterrey, Mexico in 2002, both developing and developed countries made commitments to a shared responsibility to achieve development results including those embodied in the Millennium Development Goals. Establishing an effective results-based orientation of the development process will require the capacity to monitor indicators that reliably reflect results at all phases of the development activities, from strategic planning to implementation to completion. Yet up to the present time, donors and development practitioners have lacked a common framework of results indicators by which the effectiveness of development assistance can be uniformly measured. Developing a monitoring and evaluation (M&E) system that tracks these indicators using accurate and timely data is therefore a natural priority for the international development community as well as for developing countries themselves. For agencies and institutions involved in agricultural and rural development, this means developing a common framework that will enable the development partners to harmonize their monitoring activities.

Many countries lack the capacity to produce and report the necessary data to inform the international development debate or to monitor their national trends. Although the situation is improving, global databases still suffer from data gaps and inconsistencies as a result of weaknesses in national statistical systems (NSSs). In the final analysis, the validity of the global monitoring systems depends on the quality of the data that comes from the countries. It is at country level that problems occur and it is at this level that assistance is required to build up sustainable capacity to collect and disseminate appropriate indicators.

Preparation of the Sourcebook

The Global Donor Platform for Rural Development (GDPRD) decided to prepare a guide to help standardize approaches and develop a menu of core indicators for monitoring and evaluating agricultural and rural development activities. This initiative is aimed at improving ultimately the quality of monitoring at the global level while recognizing that

strengthening the capacity to monitor must necessarily first come at the national level. Realizing the diversity of situation across countries, the preparation of Sourcebook was undertaken through a collaborative process of FAO and World Bank with widest possible consultation, validation in five pilot countries, viz., Cambodia, Nicaragua, Nigeria, Senegal, and Tanzania, and a series of peer reviews.

The steps followed in preparation of the Sourcebook involved:

Step 1: 2006: desk study to develop a conceptual framework and to prepare initial draft manual by World Bank followed by first peer review by a panel of experts from Global Donor Platform for Rural Development (GDPRD).

- **Step 2**: Jan-April 2007: review and revision of draft manual by a Team of Experts from FAO Statistics Division and the World Bank.

- **Step 3:** May-September 2007**:** FAO carried out the validation of the methodology and the indicators, in five pilot countries. The validation exercise at country level included field tests, guided interviews of experts, group activities and 2 day seminar involving country level stakeholders: government agencies and development partners. All the country seminars endorsed the sourcebook approach.

- **Step 4**: October-November 2007: Revision of the first draft by FAO-WB team.

- **Step 5**: November-December 2007: Second peer review involving all members of GDPRD members and members of the Wye City Group.

- **Step 6**: January to March 2008: Revision and editing of the document by team of Statisticians in FAO. The inputs of subject matter specialists in FAO were also obtained to clarify the concepts related to indicators.

- **Step 7**: April 2008 to now: final peer review by selected experts and finalisation of the publication.

The final draft of the publication entitled, *"**Tracking results in agriculture and rural development in less-than-ideal conditions: A sourcebook of indicators for monitoring and evaluation"*** will be soon placed on the websites of FAO, WB and GDPRD. FAO will print the document and it will be disseminated by all the co-publishing partners.

Target Audience

The Sourcebook is specifically targeted towards countries where conditions are less than ideal, particularly with respect to the availability of statistical information for building indicators or the capacity to use available information for M&E purposes. The intended users of the Sourcebook are development practitioners working in ARD and the International Community of donors.

A Summary of the Sourcebook

The Sourcebook provides guidance on how to build the capacity needed for effective monitoring and evaluation in developing countries. The Sourcebook provide the users certain basic tools to help selection of core set of indicators for monitoring and evaluating projects and programs. The book contains five Chapters including 19 Priority Indicators, a menu of 87 indicators, findings of five country studies, and a tool (score card) to make an assessment of existing capacity for M&E activities.

Chapter 1 of the source book examines what is M&E and traces its evolution since early eighties. It is noted that initially the scope of M&E was confined to project level but over a period of time its horizons expanded to monitoring programmes at sectoral level to monitoring development goals and performance of Poverty Reduction Strategies. It today's context the book concludes that although M&E could mean different things to different categories of users, it is a versatile tool for planning, for management, for governance and accountability, for empowering communities and, ultimately, for monitoring global goals.
In fact, it not only covers all of the above but also includes project supervision, applied research, financial monitoring, surveys and statistics, MISs, social analysis, and the setting and tracking of national development goals.

Chapter 2 presents the analytical framework for selection of indicators for establishing a comprehensive M&E system. It suggests the use of Logical Framework, commonly used for project formulation, for selection of indicators. Indicators are used as measuring the Project Input, Output, Outcome and Impact. In this sense there exists a kind of hierarchy of four classes of indicators, with the exception of some indicators may lie on the borderline of classes. While the Input and Output indicators are mostly used for monitoring the performance of the projects, the Outcome and Impact indicators are more relevant for measuring early and long-term results. The book examines the applicability of the use of *service delivery approach* to monitoring and evaluation of development activities, and suggests that common indicators of Access, Use and Satisfaction could be a useful tool for tracking early results of the project.

The discussion of the analytical framework concludes with reference to monitoring and evaluation at the international level. It identifies a set of 19 priority indicators already contained in the menu of indicators as core indicators for tracking ARD sector outcomes at the international level. Although, several criteria could be used for selecting indicators, these 19 indicators have been selected on grounds of Comparability, Availability and Relevance. They represent a universal minimum core set and are recommended to be included in all national M&E programmes.

The list of 19 priority indicators is given at Annex-1. The list indicates 6 indicators which are useful for measuring sector-wide performance of agriculture and rural development. One specific indicator each is included for crop, livestock, fishery and aquaculture, forestry, rural finance, agricultural research extension, irrigation and agribusiness sub-sector of agriculture. Four indicators are included for thematic areas related to agriculture and rural development: four for Community-based rural development and one for Land policy and Administration.

The book also provides an extended list of 87 indicators for measuring early outcome, medium-term outcome and long-term outcome, to serve as a menu for M&E professionals working in Agriculture and Rural Development (ARD) sector. Along with each indicator in the menu related core data requirement, data sources and technical notes and further references have been provided. The menu, including 19 priority indicators, has been split in three parts:

A. *Sector-Wide Indicators for Agriculture and Rural Development*

B. *Specific Indicators for Sub-sectors of Agriculture and Rural Development*, viz., Crops, Livestock, Fisheries and Aquaculture, Forestry, Rural Micro and SME Finance, Agriculture Research and Extension, Irrigation and Drainage, and Agri-Business.
C. *Indicators for Thematic Areas related to Agriculture and Rural Development* viz., Community-based Rural Development, Natural Resources Management, Land Policy and Administration, and Policies and Institutions.

The complete menu may referred at Annex-2.

Chapter 3 of the book deals with data framework This chapter looks specifically at the issue of data supply and reviews various tools and approaches that have been used with some success in different countries. When M&E specifications are being established, it is often not taken into consideration how expensive and resource-consuming the process of data collection and dissemination can be. It is at this early planning stage that overambitious expectations can lead to the creation of an M&E programme, which, because of its complexity, has little hope of success. In this context the availability of inexpensive tools to support the establishment of simple but effective M&E operations has been considered. A brief discussion on possible use of various types of surveys, e.g., Agricultural census and surveys, Living Standards Measurement Study (LSMS), Integrated surveys, Household budget surveys, Service delivery surveys, Core Welfare Indicators Questionnaire Survey (CWIQ), Community surveys, for M&E is included in the text. In the context of agriculture, the scope of using Windscreen Survey and other rapid appraisal methods as well as Satellite imagery and aerial photography are also covered with a view to bring out their merit and demerits. The chapter concludes with a discussion on the capacity of a National Statistical System to support M&E data needs.

The main message emerging from the Sourcebook is that no single statistical instrument can meet all the needs, and that any monitoring system will most likely acquire indicators from several different sources – both formal and informal. Since it can take a while for the necessary capacity to be built, the Sourcebook offers a number of possible shortcuts for countries with less developed statistics systems. For instance, baseline data, which are normally obtained from a household survey, may also be obtained using qualitative approaches such as participant observation or focus group interviews. Panel surveys are a powerful analytical tool, but complicated to implement. They are therefore recommended only for countries with relatively strong statistical infrastructures, or alternatively, should be delegated to research institutions.

Chapter 4 deals with the Institutional Framework needed for setting up an effective M&E system. The final challenge in building up M&E competences is neither technical nor conceptual, but managerial. It concerns ensuring that the required administrative structure and institutional capacity are created to be able to perform this work. The book notes that a

number of apparently contradictory structures with often duplicating functions may not be a uncommon in many countries. The book recommends that for improving the M&E capability a periodic review of the function should be undertaken, with regard to the stage of development of M&E system. The goal should be one of inclusion of all partners and stakeholders, not exclusion, and of creating a network of institutions engaged in M&E.

At the core of an M&E syatem, there needs to be a central unit with the authority to coordinate the different initiatives. The functions of the M&E unit include the preparation of regular monitoring reports on progress and achievements, and the commissioning of a wide range of evaluation studies on different aspects of the PRS. One of the more important functions of the unit should be to promote and encourage the demand for M&E so that informed decisions are taken by development planners. The Central M&E Unit needs to establish stronger links with data suppliers within the National Statistical System (NSS) comprising all the institutions and agencies that contribute in some way to the national statistical data, encompassing line ministries, Customs and Excise and the Central Bank, among others. The apex institution for the NSS is the National Statistics Office.

Despite the numerous areas of common interest, in many countries there appear to be two distinct and separate communities of practice – the M&E community and the statistics community. Both may be working on parallel issues but not necessarily communicating or working together. In parallel with the growth of interest in the M&E of national development programmes, there has been similar interest in the rehabilitation of NSSs. The NSS in many countries are now developing National Statistical Development Strategies (NSDS) in such a way that they are integrated into national development policy processes. This ties in closely with the ideas underpinning the development of national M&E capacity.

Donors have been among the strongest advocates for establishing good M&E procedures and for building up M&E capabilities. They have also provided strong support to the strengthening of national statistical capacity, but in many cases, their efforts have not met with success due to lack of coordination at country level. However, all major donors have now subscribed to the Marrakesh Action Plan for Statistics (OECD, 2004), in which donors commit themselves to working collaboratively to support countries to prepare NSDS.

Chapter 5 deals with setting up national capacity for M&E. The first step towards creating the appropriate environment should therefore be to undertake an assessment of current capacity. With the aid of the Sourcebook, countries should then be able to map out the route that is most appropriate to their specific situation – and to monitor progress as they proceed.. The book argues that the countries should define a strategy for developing national M&E capacity as an integral part of their overall ARD strategy. This would result in a better understanding of what works and what does not, which will lead directly to better planning of future programmes and projects. It will also lead to better programme implementation by providing timely warnings suggesting how resources may need to be reallocated where actual results are deviating from the expected results. Indeed, M&E capacity should be built up not just for reporting on performance and results, but also because it contributes in its own right to the national development goals of encouraging economic growth and poverty reduction. The Sourcebook also describes the key elements of an ARD M&E strategy and sets out the key steps that need to be followed to implement it. The path to action consists of six steps, viz.,

1. Assessment and diagnosis
2. Review of indicators
3. Review of current data, sources and gaps
4. Development of action plans
5. Review of resource requirements
6. Definition of M&E indicators for the action plan

Emerging Issues

The development of institutional capacity for M&E needs to consider three new and growing challenges.

1. The first is the impact of devolution and decentralization on M&E. Many countries now pursue broad decentralization policies aimed at bringing the government closer to the people and enhancing transparency and accountability. This has profound consequences for M&E, which is now obliged to provide indicators at a much lower level of desegregation. Where the data source is administrative records, this may not present much of a problem. When the source is a statistical survey, it can require dramatic increases in sample sizes, which may call for a major rethinking of how data are to be collected.

2. The second challenge concerns the involvement of communities themselves in M&E. As interest in community-driven development projects continues to grow, so too does the demand for community-driven M&E in which the communities themselves take charge of their own M&E. This is likely to be an area in which major methodological developments will occur.

3. Finally, there is the challenge of the monitoring and evaluation of ARD programmes at the global or international level. Monitoring international/global goals at the international level is the responsibility of the United Nations system, including the World Bank, the International Monetary Fund (IMF) and the specialized agencies, but ultimately these entities depend on the NSSs to provide the basic data. The relationship between national and international institutions engaged in monitoring is not hierarchical, but rather, complex and symbiotic. Ultimately, the global M&E network is only as strong as its weakest link. International agencies therefore have a vested interest in seeing that the capacity of national institutions is strengthened.

Key Messages from the Sourcebook

The main message emerging from the Sourcebook is that no single statistical instrument can meet all needs and that any monitoring system will most likely acquire indicators from several different sources – both formal and informal.

A desirable M&E system would be a coordinated network of institutions performing M&E functions or engaged in collection of data which is used by the M&E system. A close link between the M&E system and the NSS is crucial to strengthening the M&E activities at country level.

The Sourcebook makes the case that a fully evolved M&E system is more than simply a tracking system to measure performance and outcomes. These activities need to be put into context of a cyclical approach to management in which:

- *planning* involves the articulation of strategic choices in light of past performance;
- *implementation* includes ongoing performance monitoring and periodic evaluation that provide opportunities for learning and adjustment;
- *reporting* on results is used both for internal management and for external accountability to stakeholders, including civil society. The reporting phase also provides managers and stakeholders with the opportunity to reflect on what has and what has not worked – a process of learning and adjusting that feeds into the next planning cycle.

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Web sites

FAO Database on food and agriculture
www.faostat.fao.org
FAO Fisheries resources monitoring system
www.firms.fao.org/firms
FAO Global information system on water and agriculture
www.fao.org/nr/water/aquastat/main/index.stm
*FAO National food security statistics***.**
www.fao.org/faostat/foodsecurity/index_en.htm
International Labour Organization
www.laborsta.ilo.org
Joint Monitoring Programme for Water Supply & Sanitation data WHO & UNICEF
www.wssinfo.org
Monitoring and Evaluation News
www.mande.co.uk

Annex-1

List of priority indicators

A Sector-Wide Indicators for Agriculture and Rural Development	
1	Public spending on agriculture as a percentage of GDP from the agriculture sector
2	Public spending on agricultural inputs subsidies as a percentage of total public spending on agriculture
3	Prevalence (percentage) of underweight children under five years of age in rural areas
4	Food Production Index
5	Annual growth (%) in agricultural value added
6	Rural poor as a proportion of the total poor population
B Specific Indicators for Sub-sectors of Agriculture and Rural Development	
B1 Crops (Inputs and services related to annual and perennial crop production)	
7	Change (%) in yields of major crops of the country
B2 Livestock	
8	Annual growth (%) in value added in the livestock subsector
B3 Fisheries and Aquaculture	
9	Capture fish production as a percentage of existing stock (or a rating of the state of major capture fish stocks relevant to exports and local food)
B4 Forestry (Developing, caring for, or cultivating forests; management of timber production)	
10	Proportion or percentage of land area covered by forest
B5 Rural Micro and SME Finance	
11	Percentage of the rural population using financial services of formal banking institutions
B6 Agricultural Research and extension	
12	Public investment in agricultural research as a percentage of GDP from the agriculture sector
B7 Irrigation and Drainage (services related to water use in agriculture)	
13	Irrigated land as percentage of crop land
B8 Agri-business (Agricultural Marketing, Trade and Agro-industry)	
14	Change in sales/ turnovers (%) of agro-enterprises
C Indicators for Thematic Areas related to Agriculture and Rural Development	
C1 Community-based rural development	
15	Percentage of farmers who are members of community/producer organizations
16	Agricultural withdrawal as a percentage of total freshwater withdrawal
17	Ratio of area protected to maintain biological diversity to surface area of the country
18	Change (%) in soil loss from watersheds
C3 Land Policy and Administration	
19	Percentage of land area for which there is a legally recognized form of land tenure

Annex-2

Menu of Indicators

SI. No.	Indicators	Data Sources
A Sector-Wide Indicators for Agriculture and Rural Development		
1. Early outcome		
1	**Public spending on agriculture as a percentage of GDP from the agriculture sector**	Ministry of Finance, National Accounts, National Planning Commission, donor country reports
2	**Public spending on agricultural inputs subsidies as a percentage of total public spending on agriculture**	Ministry of Finance, National Planning Commission, donor country reports
3	**Prevalence (percentage) of underweight children under five years of age in rural areas**	Anthropometric surveys
4	Percentage of population who consider themselves better off now than 12 months ago	Special household surveys
2. Medium-term outcome		
5	**Food Production Index**	Fishery statistical system,· disaggregated data used for compilation of National Accounts Statistics
6	**Annual growth (%) in agricultural value added**	National Accounts wing of the National Statistics Office
3. Long-term outcome		
7	**Rural poor as a proportion of the total poor population**	Household income and consumption surveys
8	Percentage change in proportion of rural population below US$1 (Purchasing Power Parity) per day or below national poverty line	Household budget surveys and other surveys covering incomes and expenditure; World Bank Development Research Group
9	Percentage of the population with access to safe/ improved drinking water	Administrative or infrastructure statistics from national and subnational bodies, household surveys, Multiple Indicator Cluster Survey, Demographic and Health Surveys, Living Standard Measurement Surveys, Joint Monitoring Programme for Water Supply & Sanitation data from WHO & UNICEF. See www.wssinfo.org.
10	Consumer Price Index for food items	National Statistics Office

11	Agricultural exports as a percentage of total value added in agriculture sector	National Trade data; United Nations Statistics Division Key Development Data & Statistics, FAO, FAOSTAT database (www.faostat.fao.org)
12	Proportion of under-nourished population	FAO National Food Security Statistics (www.fao.org/faostat/foodsecurity/index_en.htm)
13	Producer price index for food items	Prices surveys; www.faostat.fao.org
14	Ratio or proportion of arable land area to total land area of the country	National Agricultural Statistics available from the Ministry of Agriculture and National Statistical Office; FAO agricultural resources statistics (www.faostat.fao.org)
15	Change (%) in unit cost of transportation of agricultural products	Unions of transport providers; national transport companies
16	Percentage of rural labour force employed in agriculture	Labour force surveys, population census, agricultural census, International Labour Organization (www.laborsta.ilo.org)
17	Percentage of rural labour force employed in non-farm activities	Farm labour data from National Census of Agriculture
18	Percentage of the labour force underemployed or unemployed	National Labour Statistics, labour force surveys, International Labour Organization (www.laborsta.ilo.org)
19	Annual growth of household income in rural area from agricultural activity (percentage)	Annual income-expenditure surveys
20	Annual growth rate of household income in rural area from non-agricultural activity (percentage)	
B Specific Indicators for Subsectors of Agriculture and Rural Development		
B1 Crops (inputs and services related to annual and perennial crop production)		
1. Early outcome		
21	Indicators of access, use and satisfaction with respect to services related to sustainable crop production practices, technologies and inputs, for example: (i) percentage of small-scale farmers who know about sustainable crop production practices (ii) percentage of farmers who applied/purchased the recommended package of inputs last season (iii) percentage of farmers who adopted sustainable crop practices in their farms	Agricultural extension services; sustainable crop production certifying bodies; agricultural/environmental services; analysis and studies made on the basis of data available from agricultural census and surveys
2. Medium-term outcome		
22	**Change (%) in yields of major crops of the country**	Objective crop yield measurement surveys or other forms of assessment

3. Long-term outcome		
23	Yield gap between farmers' yields and on-station yields for major crops of the country	Crop surveys and claims of the agricultural research and extension system
24	Percentage of total land area under permanent crops	Agricultural census and current agricultural surveys
B2 Livestock		
1. Early outcome		
25	Indicators of access, use, satisfaction with respect to livestock services, for example: • Percentage of livestock owners in contact with livestock officer in the last month • Percentage of livestock owners using veterinary services within the last month • Percentage of livestock owners satisfied with the quality of livestock services	
2. Medium-term outcome		
26	**Annual growth (%) in value added in the livestock subsector**	National Accounts wing of the National Statistics Office
3. Long-term outcome		
27	Livestock birth rate	Periodic livestock surveys and estimates prepared by livestock specialists
28	Percentage increase in yield per livestock unit	Livestock surveys; FAO Yield Livestock data (www.faostat.fao.org)
29	Percentage change in livestock values	Department of Livestock, National Accounts wing of the National Statistics Office
B3 Fisheries and Aquaculture		
1. Early outcome		
30	Indicators of access, use, satisfaction with respect to fisheries/aquaculture services, for example: • Percentage of fishing communities in contact with a fisheries officer in the last month • Percentage of rural communities that constructed a fish pond in the last year • Percentage of fishers satisfied with the quality of fisheries services	Stakeholders surveys, information available from extension wing of the Department of Fisheries and Aquaculture
31	Water use per unit of aquaculture production	Special surveys of aquaculture production units; Department of Fisheries
3. Long-term outcome		

32	**Capture fish production as a percentage of existing stock (or a rating of the state of major capture fish stocks relevant to exports and local food)**	Institutions involved in estimation of fish resources; stakeholder survey on perceived state of fish stocks
33	Share of small-scale fishers in the production of fish	National fisheries surveys; estimates prepared by National Accounts wing of the National Statistics Office
34	Fishing quota (percentage of total permitted catch) earmarked for local fishing communities as rights	Fishing regulatory bodies
35	Annual change (in percentage) in production from aquaculture farms	Department of Aquaculture and the National Statistics Office
B4 Forestry (developing, caring for or cultivating forests; management of timber production)		
1. Early outcome		
36	Indicators of access, use, satisfaction with respect to the forestry services: • percent of rural population aware of the activities of forestry services in their area • percent of communities involved in sustainable forest management • percent of communities planning to expand area under sustainable forest management	Stakeholders surveys
37	Employment in forestry-related activities (full-time equivalents)	Ministry / Agency responsible for forestry, the National Statistics Office, special surveys
38	Value of removals of wood and non-wood forest products (selected currency)	Ministry / Agency responsible for forestry, special surveys
39	Value of services from forests (selected currency)	Ministry / Agency responsible for forestry, Ministry of the Environment, special surveys
2. Medium-term outcome		
40	Area of forest under sustainable forest management (hectares)	Ministry of Environment Ministry / Agency responsible for forestry, certification bodies
3. Long-term outcome		
41	**Proportion or percentage of land area covered by forest**	Ministry / Agency responsible for forestry, geographical institute
42	Annual growth or percentage change in rural household income from forest-related activities	Household income surveys for rural areas
43	Growing stock per hectare (m^3/ha) of forest	Ministry/Agency responsible for forestry
44	Rate of deforestation (percentage)	Ministry of Environment and Forests
B5 Rural Micro and SME Finance		

1. Early outcome		
45	**Percentage of the rural population using financial services of formal banking institutions**	Central Bank or Lead Commercial Banks active in an area, population census, special survey
46	Indicators of access, use, satisfaction with respect to rural finance services, for example: • percentage of the rural population eligible to obtain a business loan • percentage of users who are satisfied with the banking services	Central Bank or Lead Commercial Banks active in an area; special survey
47	Percentage of bank branches that are located in rural areas	Central Bank or Lead Commercial Banks active in an area
3. Long-term outcome		
48	Percentage of total savings that are mobilized from rural areas	Central Bank or Lead Commercial Banks active in an area
49	Percentage of rural population using non-bank financial services – e.g. insurance, leasing	Insurance and leasing companies and special surveys
50	Recovery rate of rural credit	Central Bank or Lead Commercial Banks or refinance institutions active in the area
B6 Agricultural Research and Extension		
1. Early outcome		
51	**Public investment in agricultural research as a percentage of GDP from the agriculture sector**	Ministry of Finance; National Accounts Statistics
52	Indicators of access, use, satisfaction with research and extension advice, e.g. • percentage of farmers having knowledge of a specific technology {NAME} advice being disseminated by extension system • percentage of farmers trying the specific technology advice from extension systems on their farms • percentage of farmers who were satisfied with the specific technological recommendations of the extension system and judged it beneficial, with or without adaptation	Special surveys
3. Long-term outcome		
53	Percentage change in yields resulting from improved practices, for major crops of the country	Current agricultural statistics or assessments based on interviews of farmers
54	Change in farmer income as a result of new technologies (by gender)	Special studies on improved agricultural practices
B7 Irrigation and Drainage (services related to water use in agriculture)		
1. Early outcome		

55	**Irrigated land as percentage of crop land**	Agricultural census and current agricultural surveys
56	Percentage of users who report a significant increase in crop yields as a result of the provision of irrigation and drainage services	Agricultural census; other crop-related surveys or water user survey
57	Indicators of access, use, satisfaction with respect to irrigation and drainage services, for example:• percentage change in proportion of farmers with access to functioning (reliable and adequate) irrigation and drainage network• percentage change in the number of users	Agricultural census; other crop related surveys or water user survey
58	Proportion of service fees collection to total cost of sustainable Water User Association (WUA) activities and functions	Special studies on financial aspects of WUA
3. Long-term outcome		
59	% change in average downstream water flows during dry season	Records of project authorities
60	Percentage change in agricultural value added created by irrigated agriculture	Special studies
61	Percentage of irrigation schemes that are financially self-sufficient	Ministry of Water Resources
62	Percentage increase in cropping intensity	Census of Agriculture; current agricultural surveys and related surveys
B8 Agri-business (agricultural marketing, trade and agro-industry)		
1. Early outcome		
63	Indicators of access, use and satisfaction with respect to agribusiness and market services, e.g. • % of farmers aware of market price and information services • % of farmers using market price and information services • % of farmers who are satisfied with agri-business and market services	Stakeholders surveys
64	Percentage change in number and value of activities managed by agro-enterprises	Enterprise survey
65	Proportion or percentage of agro-enterprises adopting improved /certified hygiene/food management system	Ministry of Industry; hygiene and food certification bodies
2. Medium-term outcome		
66	**Change in sales/ turnovers (%) of agro-enterprises**	Direct data collection through special surveys, including enterprises and a control group of enterprises

3. Long-term outcome		
67	Percentage change in number of agricultural inputs outlets	Ministry of Agriculture; companies marketing agricultural inputs
68	Percentage increase in private sector investments in agriculture	National accounts statistics; special surveys to assess private capital formation in an area
69	Percentage increase in market share of cooperatives/agribusiness enterprises	Ministry of Industry, special studies
C Indicators for Thematic Areas Related to Agriculture and Rural Development		
C1 Community-based rural development		
1. Early outcome		
70	**Percentage of farmers who are members of community/producer organizations**	Special surveys to directly ask households or indirectly compiled on the basis of the membership record of community/producer organizations and demographic information
71	Indicators of access, use, satisfaction with respect to services provided by community-based rural development organizations, for example: • % of members of community/producer associations reporting increased production or profits as a result of membership	Special surveys to directly ask the households or indirectly compiled on the basis of the membership record of producer organizations and demographic information; satisfaction would need to be measured through a survey of members of the organization
72	Proportion of community/producer organizations capable of meeting the production and marketing needs of their members	Stakeholders surveys and assessments
73	Proportion of people's organizations (POs)/NGOs with functional internal system of checks and balances	National Registry of NGOs; governing laws, procedures and accounts of NGOs
74	Percentage change in number of community associations exercising voting power in local government budget allocation	Survey of Community Associations
3. Long-term outcome		
75	Percentage increase in number of local enterprises in rural area	Enterprise survey, special survey
C2 Natural Resource Management		
2. Medium-term outcome		
76	**Agricultural withdrawal as a percentage of total freshwater withdrawal**	National Ministry of Water Resources; special studies using crop and irrigation data from agricultural census/ surveys to estimate use of water in agriculture, per capita consumption by humans and consumption by industries

77	**Ratio of area protected to maintain biological diversity to surface area of the country**	Ministry of Environment and Forests
78	**Change (%) in soil loss from watersheds**	Watershed authorities
3. Long-term outcome		
79	Change (in %) of farm land under risk of flood/drought	Ministry of Agriculture, Ministry of Environment
C3 Land Policy and Administration		
2. Medium-term outcome		
1. Early outcome		
80	Percentage of land area inventoried	Census of Agriculture, Land/Cadastral Register
81	Proportion of land area formally established as protected area (%)	Ministry of Environment
82	**Percentage of land area for which there is a legally recognized form of land tenure**	Agricultural census; Land Registration Authorities
3. Long-term outcome		
83	Share of land over which there are disputes (%)	Land/Cadastral Register; Land Dispute Settlement Authorities/Courts
84	Percentage of agricultural households that have legally recognized rights to land	Population Census and Agricultural Census, special survey in project area
85	Percentage change in number of formal land transactions (quarterly or yearly basis)	Land registration authority; land/cadastral register
86	Change in land access (%) for women and minority groups	Agricultural Census, land/cadastral register
C4 Policies and Institutions		
3. Long-term outcome		
87	Ratio of average income of the richest quintile to the poorest quintile (%) in rural areas	Household budget or income surveys