

Tracking Results in Agriculture and Rural Development in Less-Than-Ideal Conditions

A Sourcebook of Indicators for Monitoring and Evaluation

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WHY A SOURCEBOOK OF INDICATORS?

The demand for verifiable evidence of results and impacts of development agricultural programs and projects is growing. However, most of the indicators that development practitioners have traditionally used in tracking progress toward achieving projects' objectives focus on the workings of the development operation itself. These *performance indicators* relate mainly to lower-level inputs and outputs and are used to populate management information systems. Higher-level indicators are used to measure progress in achieving the ultimate objectives of projects, and in bringing about larger outcomes and impacts. These *results indicators* have become increasingly prominent in the wake of recent international resolutions such as the *Paris Declaration on Aid Effectiveness* in 2005 and the *Monterrey Consensus on Financing for Development* in 2002. While no conflict exists between performance and results indicators, and while effective monitoring and evaluation (M&E) systems track both—reassuring performance indicators do not ensure the achievement of a project's larger goals. A project that is diligently monitored for financial oversight and compliance with sound management and performance principles may very well achieve no signifi-

cant impacts. The need to empirically demonstrate the impacts of projects has shifted the focus of M&E from a concentration on inputs and outputs to a concentration on outcomes and impacts.

The ability to measure and demonstrate outcomes and impacts relies on the use of indicators that are based on reliable data and on the capacity to systematically collect and analyze that information. The conditions in which M&E are carried out vary widely, depending on the demand for information, the extent to which it is used to inform decision-making, and the reliability of the systems that are in place to capture and convey that information. Throughout much of the developing world these conditions are "less-than-ideal," and information is irregular and often lacking altogether. In these conditions there is a lack of effective demand for information on the part of policy makers. The conditions are often especially pronounced for data related to rural areas, where the costs of data collection are high and the quality of existing data is particularly low. Building data systems and developing and supporting capacity for M&E in these conditions is, therefore, a pressing imperative for interventions in the agriculture and rural development sector. Strengthening capacity for M&E begins at the national and sub-national levels, where addressing the weaknesses of national statistical systems is a common priority. The data collected and reported within countries must not only be of sufficient quality to inform planning and policy formulation but must also be consistent between countries. Standardizing the information collected by global databases facilitates comparisons across countries by international agencies such as the World Bank and the UN Food and Agriculture Organization (FAO) that monitor regional and global trends and realities and track progress toward achieving the Millennium Development Goals.

OBJECTIVES

The FAO, the Global Donor Platform for Rural Development, and the World Bank, therefore, set out to compile a set of results-based indicators, including a number of core indicators to meet the most basic data requirements of international monitoring. The core indicators were also selected on the basis of their simplicity



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in order to accommodate the limited resources and capacity of institutions responsible for M&E at the national and sub-national levels. The indicators are introduced in a co-publication of the three institutions titled *Tracking Results in Agriculture and Rural Development in Less-than-Ideal Conditions: A Sourcebook of Indicators for Monitoring and Evaluation*, which also presents a series of practical recommendations based on experience in setting up M&E systems where capacity and resources are limited. The *Sourcebook* is intended to serve as a resource for capacity building. Systematically monitoring core indicators will lead to the capacity to monitor more sophisticated indicators as monitoring institutions accumulate experience, as the information they collect becomes more reliable, and as demand for that information increases.

THE ANALYTICAL FRAMEWORK

Systematically measuring the impact of a development program involves the application of an analytic or logical framework (logframe) in which indicators are classified as *performance indicators* and *results indicators*. In results-based systems, relatively greater weight is attached to indicators that are used to measure outcomes and impacts than to performance indicators, which are comparatively cheap and easy to monitor. This represents a departure from conventional M&E.

Performance indicators are used to measure the effective use of inputs to generate outputs and to compare the actual effects of the inputs to their expected effects on outputs. Inputs are the financial, physical, and human resources that are employed by the project to produce outputs. Outputs are the project's products—the goods and services produced by introducing the inputs. Monitoring performance by determining how effectively and efficiently inputs are converted into outputs consists largely of book keeping and analyzing financial records to produce financial reports and data that are entered into management information systems. This information is used for cost-benefit analysis, to calculate the costs per unit of output, and a variety of input-output ratios that are used for financial reporting and in periodic progress reports.

Results indicators are generally classified as outcomes and impacts on beneficiaries or target populations. Outcomes are changes in people's behavior—often through their response to incentives—that result from their access or exposure to project outputs and their use. Optimally, these behavioral changes will advance the intended goals or impacts of the project. Impacts are the ultimate effects of the project, whether intended or unintended. Monitoring these higher-level effects is significantly more involved than examining the information internally available in financial and management information systems, and entails soliciting information from clients and beneficiaries about how the project has affected them. It is important to correct any misapprehension that results indicators are monitored after performance

indicators, for no such sequence applies. Results need to be tracked throughout the project's implementation so that corrective action can be taken mid-course—for instance, identifying intended beneficiaries who are not being reached and determining why. This tracking of early results addresses a traditional weakness in M&E that is attributable to the time lag between when project outputs are provided and when higher-level outcomes are, or are not, achieved. The *Sourcebook* focuses on results indicators, including **early outcome indicators**.

THE DATA FRAMEWORK

Tracking early outcomes requires data from clients. Employing surveys to determine whether clients are being reached by a project's delivery of services and products is equated with market research and its measurement of customer satisfaction. Such surveys can track three essential indicators that reflect the effectiveness of a project's delivery: **access**, **use**, and **satisfaction**. What proportion of intended beneficiaries actually has access to the project's products and services? What proportion is actively using or adopting those products and services? And among this group, what proportion of users is satisfied with the products and services? Surveys are optimally carried out by independent authorities rather than the service providers themselves. The institutions that are responsible for delivering the services can be usefully surveyed to gauge results from the supplier's perspective. Beneficiaries, on the other hand, are typically consulted through community focus groups, household surveys, and rapid rural assessments. Employing these different instruments generates feedback from multiple perspectives and enables monitoring agencies to cross-reference and triangulate information from different sources. The surveys are used in addition to a variety of traditional data collection tools, such as population census, agricultural census and surveys, household surveys, and community surveys.

THE INSTITUTIONAL FRAMEWORK

M&E is an exacting and costly process that can seriously tax the limited resources and managerial capacity of public institutions in low-income countries. Its demands lead to a dilemma in which the countries that most urgently require M&E are also those that have the fewest resources available to undertake it. This familiar scenario suggests support to capacity building among these monitoring institutions as a logical priority for official development assistance. The starting point for this assistance is most often the country's national statistical system (NSS), to which sectoral institutions such as agriculture ministries provide data. The coordination of M&E between the different institutions and agencies that collect data at the sector level requires purposeful coordination on the part of the NSS and supervision to establish common reporting practices. In many countries national statistical development strategies are being undertaken to strengthen the NSS, and the *Sourcebook* identifies this as an opportune

entry point for aid that is intended to support capacity building for M&E. The indicators detailed in the *Sourcebook* are intended to serve as a basis for a strategic plan to improve agricultural statistics. The plan is to be presented to the United Nations Statistical Commission in February 2010.

EMERGING ISSUES

The *Sourcebook* points to emerging challenges for M&E. The first challenge relates to decentralization. In many developing countries the process of decentralization is underway, in which government roles and responsibilities are devolving to local authorities. This implies greatly expanded sample sizes and the collection of data at lower levels of disaggregation in the surveys used to monitor results indicators – and imposes new demands on sub-national authorities that often have little existing capacity. It also imposes demands on the national statistical offices that rely on sub-national authorities for data. Few such national offices are likely to see an expansion in the resources available to them commensurate with the potentially dramatic expansion of sample sizes and numbers of surveys. A second challenge relates to community participation in M&E, particularly in projects that involve community-driven or community-based rural development. Decentralization and projects in which communities assume responsibility for M&E both represent trends that will require new methods of data collection, analysis, and new capacities to undertake them. From the perspective of international development agencies, bringing develop-

ment assistance directly to bear on the capacity for M&E at these levels represents an important opportunity to address the weakest links in their information sources.

THE INDICATORS

The *Sourcebook* presents a list of 86 core indicators which are used to measure early-, medium-, and long-term outcomes. The list includes the core data requirements needed to construct the indicators and the data sources from which the information is derived. The first 20 indicators are sector-wide, followed by a list for monitoring agricultural and rural subsectors, including crops, livestock, fisheries and aquaculture, forestry, rural microfinance and small and medium enterprise finance, agribusiness, agricultural research and extension, and irrigation and drainage. These are followed by a list of thematic indicators for community-based rural development, natural resources management, land policy and administration, and policies and institutions.

Nineteen of the indicators are identified as *priority indicators*, selected specifically as starting points for M&E in less-than-ideal conditions, based on their relative simplicity and the cost-effectiveness with which they can be gathered. These indicators are also intended to meet the most basic data requirements of international agencies responsible for global-level M&E. They are shown in red in the following list. The complete list of indicators, including data sources, core data requirements, and technical notes is provided in the *Sourcebook* itself.

A. Sector-Wide Indicators for Agriculture and Rural Development

Early outcome	<p>1. Public spending on agriculture as a percentage of GDP from the agriculture sector</p> <p>2. Public spending on agricultural input subsidies as a percentage of total public spending on agriculture</p> <p>3. Percentage of underweight children under five years of age in rural areas</p> <p>4. Percentage of population who consider themselves better off now than 12 months ago</p>
Medium-term outcome	<p>5. Food Production Index</p> <p>6. Annual growth (percentage) in agricultural value-added</p>
Long-term outcome	<p>7. Rural poor as a proportion of the total poor population</p> <p>8. Percentage change in proportion of rural population below US\$1 per day or below national poverty line</p> <p>9. Percentage of the population with access to safe or improved drinking water</p> <p>10. Consumer Price Index for food items</p> <p>11. Agricultural exports as a percentage of total value-added in agriculture sector</p> <p>12. Proportion of under-nourished population</p> <p>13. Producer Price Index for food items</p> <p>14. Ratio of arable land area to total land area of the country</p> <p>15. Percentage change in unit cost of transportation of agricultural products</p> <p>16. Percentage of rural labor force employed in agriculture</p> <p>17. Percentage of rural labor force employed in non-farm activities</p> <p>18. Percentage of the labor force underemployed or unemployed</p> <p>19. Annual growth rate of household income in rural areas from agricultural activity (percentage)</p> <p>20. Annual growth rate (percentage) of household income in rural areas from non-agricultural activity</p>

B. Specific indicators for Subsectors of Agriculture and Rural Development

1. Crops (inputs and services related to annual and perennial crop production)	
Early outcome	21. Access, use, and satisfaction with services involving sustainable crop production practices, technologies, and inputs
Medium-term outcome	22. Percentage change in yields of major crops of the country
Long-term outcome	23. Yield gap between farmers' yields and on-station yields for major crops of the country
	24. Percentage of total land area under permanent crops
2. Livestock	
Early outcome	25. Indicators of access, use, and satisfaction with respect to livestock services
Medium-term outcome	26. Annual growth (percentage) in value-added in the livestock sector
Long-term outcome	27. Livestock birth rate
	28. Percentage increase in yield per livestock unit
	29. Percentage change in livestock values

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3. Fisheries and Aquaculture	
Early outcome	30. Indicators of access, use, and satisfaction with respect to fisheries/aquaculture services 31. Water use per unit of aquaculture production
Long-term outcome	32. Capture fish production as a percentage of fish stock 33. Share of small-scale fishers in the production of fish 34. Percentage of total permitted catch earmarked for local fishing communities as rights 35. Annual percentage change in production from aquaculture farms
4. Forestry	
Early outcome	36. Indicators of access, use, and satisfaction with respect to the forestry services: 37. Employment in forestry-related activities (full-time equivalents) 38. Value of removals of wood and non-wood forest products 39. Value of services from forests
Medium-term outcome	40. Area of forest under sustainable forest management
Long-term outcome	41. Percentage of land area covered by forest 42. Annual growth in rural household income from forest-related activities 43. Growing stock per hectare (m ³ /ha) of forest 44. Percentage rate of deforestation
5. Rural Micro and SME Finance	
Early outcome	45. Indicators of access, use, and satisfaction with respect to rural finance 46. Percentage of the rural population using financial services of formal banking institutions 47. Percentage of bank branches that are located in rural areas
Long-term outcome	48. Percentage of total savings that are mobilized from rural areas 49. Percentage of rural population using non-bank financial services 50. Recovery rate of rural credit
6. Agricultural Research and Extension	
Early outcome	51. Indicators of access, use, and satisfaction with research and extension advice 52. Public investment in agricultural research as a percentage of GDP from the agriculture sector
Long-term outcome	53. Percentage change in yields resulting from improved practices for major crops of the country 54. Change in farmer income as a result of new technologies (by gender)
7. Irrigation and Drainage	
Early outcome	55. Indicators of access, use, and satisfaction with respect to irrigation and drainage services 56. Irrigated land as a percentage of crop land 57. Percentage of users who report a significant increase in crop yields as a result of irrigation and drainage services 58. Service fees collected as a percentage to total cost of sustainable Water User Association (WUA) activities
Long-term outcome	59. Percentage change in average downstream water flows during dry season 60. Percentage change in agricultural value-added created by irrigated agriculture 61. Percentage of irrigation schemes that is financially self-sufficient 62. Percentage increase in cropping intensity
8. Agribusiness (agricultural marketing, trade and agro-industry)	
Early outcome	63. Indicators of access, use, and satisfaction with respect to agribusiness and market services 64. Percentage change in number and value of activities managed by agro-enterprises 65. Percentage of agro-enterprises adopting improved/certified hygiene/food management system
Medium-term outcome	66. Percentage change in sales/turnovers of agro-enterprises
Long-term outcome	67. Percentage change in number of agricultural inputs outlets 68. Percentage increase in private sector investments in agriculture 69. Percentage increase in market share of cooperatives/agribusiness enterprises
C. Indicators for Thematic Areas Related to Agriculture & Rural Development	
1. Community-based Rural Development	
Early outcome	70. Access, use, and satisfaction with respect to services provided by community-based, rural development organizations 71. Percentage of farmers who are members of community/producer organizations 72. Proportion of community/producer organizations capable of meeting the production and marketing needs of their members 73. Proportion of producer organizations/NGOs with functional internal system of checks and balances 74. Percentage change in number of community associations exercising voting power in local government budget
Long-term outcome	75. Percentage increase in number of local enterprises in rural areas
2. Natural Resource Management	
Medium-term outcome	76. Withdrawal of water for agricultural as a percentage of total freshwater withdrawal 77. Percentage change of land area formally established as protected area 78. Percentage change in soil loss from watersheds
Long-term outcome	79. Percentage change of farm land under risk of flood/drought
3. Land Policy and Administration	
Early outcome	80. Percentage of land area inventoried 81. Percentage of land area for which there is a legally recognized form of land tenure
Long-term outcome	82. Percentage change of land over which there are disputes 83. Percentage of agricultural households that have legally recognized rights to land 84. Percentage change in number of formal land transactions (quarterly or yearly basis) 85. Percentage change in land access for women and minority groups
4. Policies and Institutions	
Long-term outcome	86. Ratio of average income of the richest quintile to the poorest quintile in rural areas

This ARD Note was prepared by Gunnar Larson, under the guidance of Sanjiva Cooke and Nwanze Okidegbe, of the Agriculture and Rural Development Department of the World Bank. It is based on *Tracking Results in Agriculture and Rural Development in Less-than-Ideal Conditions: A Sourcebook of Indicators for Monitoring and Evaluation* prepared by a joint team of staff from the World Bank and FAO for the Global Donor Platform for Rural Development.

