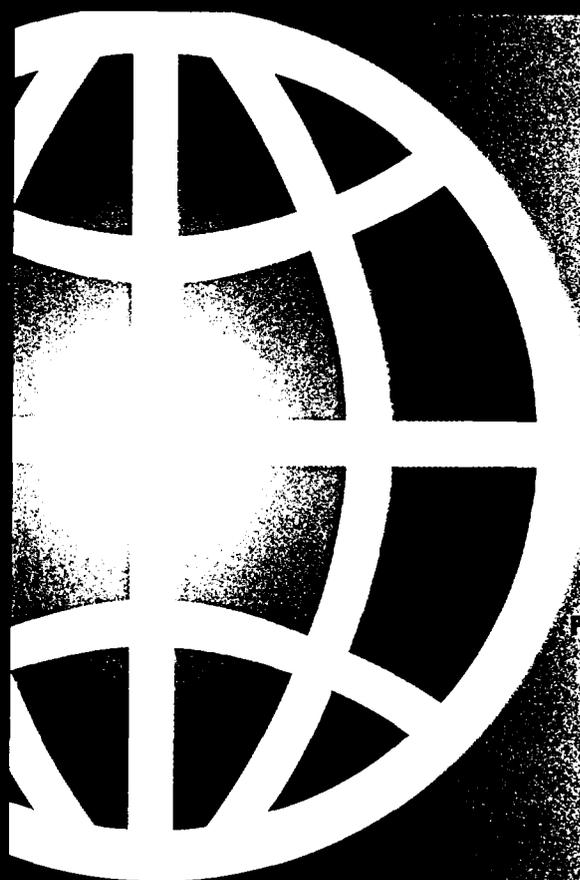


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Performance Monitoring Indicators Handbook



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Performance Monitoring Indicators Handbook

Roberto Mosse
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Washington, D.C.

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FOREWORD

As part of ongoing efforts to improve the quality and impact of its work, the World Bank is placing new emphasis on the use of performance monitoring indicators. These indicators, which are based on a logical framework of project objectives and end-means relationships, help generate more thoughtful, logically constructed project designs. And because they serve as benchmarks against which to measure project progress toward development objectives, they result in more meaningful project monitoring and evaluation.

Over the past two years Bank staff have developed notes on suggested performance monitoring indicators for each of the main sectors in which the Bank is active. These notes offer a framework for use by task managers, borrowers, and project implementation units in analyzing the relationship between objectives and monitorable outcomes and impacts. They also offer a menu of possible indicators.

This handbook, which introduces and supplements the sector notes, is divided into three sections. The first section explains why menus of indicators were developed; provides the background on the logical framework and typology of indicators; describes how indicators are developed and applied in project design, supervision, and evaluation; and discusses important issues related to the meaningful use of indicators. The second section describes the sector notes on indicators and their use and explains how to get copies. The third section provides examples of performance indicators developed for Bank-financed projects and shows how the indicators were developed on the basis of each project's development objectives.

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Director, Operations Policy
May 1996

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PERFORMANCE MONITORING INDICATORS

What are performance monitoring indicators?

Performance indicators are measures of project impacts, outcomes, outputs, and inputs that are monitored during project implementation to assess progress toward project objectives. They are also used later to evaluate a project's success. Indicators organize information in a way that clarifies the relationships between a project's impacts, outcomes, outputs, and inputs and help to identify problems along the way that can impede the achievement of project objectives.

Why are performance monitoring indicators important?

In recent years several important studies—most notably the Portfolio Management Task Force Report and reviews by the Operations Evaluation Department (OED)—have found that the monitoring and evaluation of Bank-financed projects did not focus adequately on the factors that are critical for positive development impact. Both the task force and OED concluded that performance indicators should be integrated with the monitoring and evaluation procedures used by the Bank and its borrowers.

The Portfolio Management Task Force Report (also known as the Wapenhans Report) analyzed the factors that affect the development impact of Bank operations.¹ As part of this analysis the task force focused on how evaluation methodologies, including the calculation of economic rate of return and the project rating methodology, were used during project appraisal and supervision to enhance the quality of Bank-supported projects. The task force found that project ratings were not providing implementation units, borrowers, and Bank task managers with adequate feedback about progress toward development impact for several reasons:

- Too much emphasis was placed on the mechanics (physical and financial) of project implementation.
- The risks and factors that most influence project outcomes were poorly identified.
- Objective criteria, transparency, and—since the methodology depended on the judgment of individuals—consistency across units were lacking.
- Ratings tended to be overly optimistic.

***Portfolio
Management Task
Force findings***

Without appropriate feedback, none of the parties concerned with project outcomes could make appropriate, informed decisions about whether and how to adjust project design or implementation arrangements to better achieve a project's intended objectives. A related problem is that the objectives themselves are often not well thought out or clearly articulated, clouding the development of appropriate performance monitoring indicators and making monitoring and evaluation even more difficult.

Further, the task force pointed out that the Bank's traditional method of appraisal and evaluation of development impact—the calculation of economic rate of return or net present value—cannot be applied to all projects and that for some projects, a meaningful cost-benefit analysis is not feasible. Even for projects for which net present value or economic rate of return is calculated, Bank practice is to calculate it only a few times—during appraisal, during a midterm review, upon restructuring if necessary, and at the time of the Implementation Completion Report. Neither the calculations nor the critical variables that affect them are monitored explicitly throughout implementation. Moreover, the report pointed out, in many instances costs and benefits could be more easily identified and measured with performance indicators.

The task force concluded that the Bank's project rating methodology and supervision reporting system should be adapted to include the use of project performance monitoring indicators derived from a project's development objectives and implementation plan.

OED studies

Two OED studies reviewing the Bank's record on the monitoring and evaluation of projects reinforced the findings of the task force report.² In fiscal 1994 a study assessing twenty years of Bank projects found that Bank guidelines and directives on monitoring and evaluation had not been followed adequately, either during project appraisal (when monitoring and evaluation are planned) or during implementation. But the study also found evidence that the situation was changing.

A follow-up study of monitoring and evaluation plans in a sample of fiscal 1995 projects suggests that the quality of such planning has improved. The improvement is evident in the rising use of performance monitoring indicators—the share of projects with at least some indicators rose from 72 percent in fiscal 1993 to 77 percent in fiscal 1995. Nevertheless, the expanding use of indicators has not been matched by arrangements for data collection or monitoring and evaluation capacity-building efforts in either the Bank or borrowing countries. Relatively few projects (14 percent of the sample reviewed by OED in fiscal 1995) achieve overall good practice in comprehensive design or use of monitoring and evaluation. And performance monitoring indicators, although more widely used, are weak in structure and usually do not follow a logical framework or a typology, and there is not always follow-through on data collection.

***Next Steps
Action Plan***

In response to these concerns, Bank management has made efforts to foster the use of performance indicators. In the Next Steps Action Plan, which was designed to implement the recommendations of the Wapenhans task force, management called for incorporating performance monitoring indicators in the project rating system used for project monitoring (through Form 590 and the Annual Report on Portfolio Performance), to

better monitor progress toward a project's development objectives. Management also recognized that the Bank needed to develop sector-specific indicators to help borrowers and Bank staff define project objectives more narrowly and to derive logical measures of project outcomes and impact in order to measure achievement of project objectives. The Bank also needed to support the use of indicators in the revised project rating system. Therefore the action plan called for the sector departments within the Central Vice Presidencies to develop sets of sector-specific indicators that are most relevant to project design and monitoring—the sector notes on indicators discussed in the second part of this handbook. Staff would then be required to ensure that key sector-specific project impact indicators were identified in project appraisal documentation and that progress was monitored against these benchmarks.

What are the advantages of performance monitoring indicators?

Performance monitoring involves periodically measuring a project's progress toward explicit short- and long-term objectives and giving feedback on the results to decision-makers who can use the information in various ways to improve performance (box 1).

Box 1. Uses of performance indicators

STRATEGIC PLANNING. For any program or activity, from a development project to a sales plan, incorporating performance measurement into the design forces greater consideration of the critical assumptions that underlie that program's relationships and causal paths.¹ Thus performance indicators help clarify the objectives and logic of the program.

PERFORMANCE ACCOUNTING. Performance indicators can help inform resource allocation decisions if they are used to direct resources to the most successful activities and thereby promote the most efficient use of resources.

FORECASTING AND EARLY WARNING DURING PROGRAM IMPLEMENTATION. Measuring progress against indicators may point toward future performance, providing feedback that can be used for planning, identifying areas needing improvement, and suggesting what can be done.

MEASURING PROGRAM RESULTS. Good performance indicators measure what a program has achieved relative to its objectives, not just what it has completed; thus they promote accountability.

PROGRAM MARKETING AND PUBLIC RELATIONS. Performance indicators can be used to demonstrate program results to satisfy an external audience. Performance data can be used to communicate the value of a program or project to elected officials and the public.

BENCHMARKING. Performance indicators can generate data against which to measure other projects or programs. They also provide a way to improve programs by learning from success, identifying good performers, and learning from their experience to improve the performance of others.

QUALITY MANAGEMENT. Performance indicators can be used to measure customer (beneficiary) satisfaction, and thereby assess whether and how the program is improving their lives.

1. Thomas J. Cook, Jerry VanSant, Leslie Stewart, and Jamie Adrian, "Performance Measurement: Lessons Learned for Development Management," *World Development* 23(8):1303-15 (1995).

For the purposes of the Bank and its clients the most significant benefits of performance indicators accrue in project design (strategic planning), project supervision and monitoring (forecasting results), and project evaluation (measuring results and quality management). The needed information and data collection efforts become evident as project objectives are formulated. In a performance monitoring system, indicators serve as tools for measuring the flow of change. Baselines are the values of performance indicators at the beginning of the planning period; targets are the values at the end.

The benefits of indicators come from their measurability and from their direct derivation from project objectives, which are grounded in sector, economic, risk, and beneficiary analysis. Indicators specifically link a project's inputs and activities with quantified measures of expected outputs and impact. Before selecting indicators, the borrower or project implementation unit and the Bank must consider which measures of performance will tell them whether and how a project's proposed objectives are being achieved and who will benefit—thereby contributing to a more precise definition of the objectives. Borrowers and the Bank must also ask whether the necessary data are available and decide what users should do in response to the indicator outcomes.

With indicators, monitoring and evaluation is more compelling because it is objective, not based on personal judgments or pure description. Furthermore, indicators hold a project's ultimate goals clearly in view throughout implementation. If designed and used correctly, indicators meet the specific information needs and scope of authority of all the parties concerned with implementation—field staff, implementation unit, borrower, task manager, and Bank management. The implementation unit and its subunits are most interested—and in a better position to respond to—indicators of inputs, risk factors, and outputs. The Bank and its borrowers are most interested in indicators of output, outcome, and development impact. Thus the indicators help all parties focus on the areas of greatest concern to them.

How are performance monitoring indicators developed?

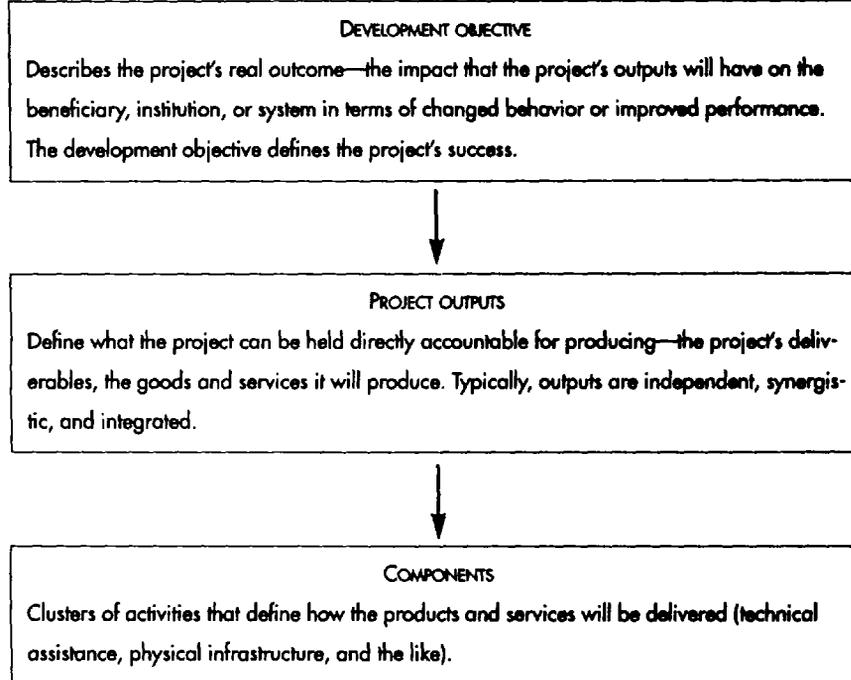
Performance indicators must be based on the unique objectives of individual projects.³ But any set of performance indicators should also be based on an underlying logical framework that links project objectives with project components and their respective inputs, activities, and outputs at different implementation stages.⁴ The framework is objective-driven, since any action under a project should be aimed at achieving its objectives. Given the project's development objectives, the best mix of outputs to achieve these objectives and components that will yield these outputs are derived. A general schematic of the point of view of the logical framework is shown in box 2.

Understanding how to derive performance indicators from a project's objectives and components requires some understanding of the concept of the logical framework.

The logical framework

The logical framework is a methodology for conceptualizing projects and an analytic tool that has the power to communicate a complex project clearly and understandably on a single sheet of paper. It is a participatory planning tool whose power depends on how well it incorporates the full range of views of intended beneficiaries

Box 2. Point of view of the logical framework



Source: Team Technologies, Inc.

and others who have a stake in the project design. It is best used to help project designers and stakeholders:

- Set proper objectives
- Define indicators of success
- Identify key activity clusters (project components)
- Define critical assumptions on which the project is based
- Identify means of verifying project accomplishments
- Define resources required for implementation.

As an up-front planner the logical framework can be used to help design tools for project implementation and evaluation. Knowing its advantages and limitations helps in assessing the value of the logical framework methodology at various points in the project cycle (box 3).

Antecedents to the logical framework

The logical framework can improve the identification, preparation, and performance appraisal process by clarifying a project's design and making it transparent to the borrower, the lender, and beneficiaries and other stakeholders. The framework assumes that projects are instruments of change and that they are selected from

Box 3. Advantages and limitations of using the logical framework method

ADVANTAGES

- Ensures that fundamental questions are asked and weaknesses are analyzed in order to provide decisionmakers with better and more relevant information.
- Guides systematic and logical analysis of the interrelated elements that constitute a well-designed project.
- Improves planning by highlighting linkages technology, and effects on the environment.
- Facilitates common understanding and better communication between decisionmakers, managers, and other parties involved in the project.
- Used along with systematic monitoring, ensures continuity of approach when original project staff are replaced.
- May facilitate communication between governments and donor agencies once it has been adopted by more institutions.
- Makes it easier to undertake sectoral studies and comparative studies in general, if used widely.

LIMITATIONS

- May give rise to rigidity in project administration when objectives and external factors specified at the outset are overemphasized. This can be avoided by regular project reviews at which the key elements can be reevaluated and adjusted.
- As a general analytic tool, is policy neutral on questions of income distribution, employment opportunities, access to resources, local participation, cost and feasibility of strategies and between project elements and external factors.
- Is only one of several tools to be used during project preparation, implementation, and evaluation. It does not replace beneficiary analysis; time planning; economic, financial, and cost-benefit analysis; environmental impact assessment; or similar tools.

among alternatives as the most cost-effective way of achieving a desired outcome. It brings together as its antecedents several project management perspectives:

- *Results-oriented management.* Projects begin with a set of objectives rather than components, and success is measured by the degree to which development objectives have been met. Management is held accountable for results.
- *Basic scientific method.* Projects are experiments undertaken in an uncertain world. From this point of view a project is a structured process for learning about what produces results. This perspective assumes that projects are learning systems.
- *Systems analysis.* A project, like a system, is not defined until we have defined the larger system of which it is a part. Projects take place not in a vacuum but in a relationship with an external environment of organizations, institutions, and other projects.
- *Contract law.* Every contract (project) has the same basic features:
 - A set of deliverables (outputs)
 - Circumstances that constitute force majeure (assumptions)
 - A meeting of the minds about what the deliverables will produce (development objective).
- *Cause and effect.* The core concept underlying the logical framework is cause and effect. The better the cause and effect linkages between objectives, the better the project design. By definition, each project has this if-then or cause and effect logic embedded in it. If the project produces certain outcomes under certain conditions,

then it can be expected to achieve certain other outcomes. For example, if the project supplies farmers with improved seed and puts a credit system in place, and assuming there is adequate rainfall, then production will increase. The logical framework forces project planners to make this cause and effect logic explicit, but it does not guarantee a good design. The validity of the cause and effect logic depends on the quality and experience of the design team.

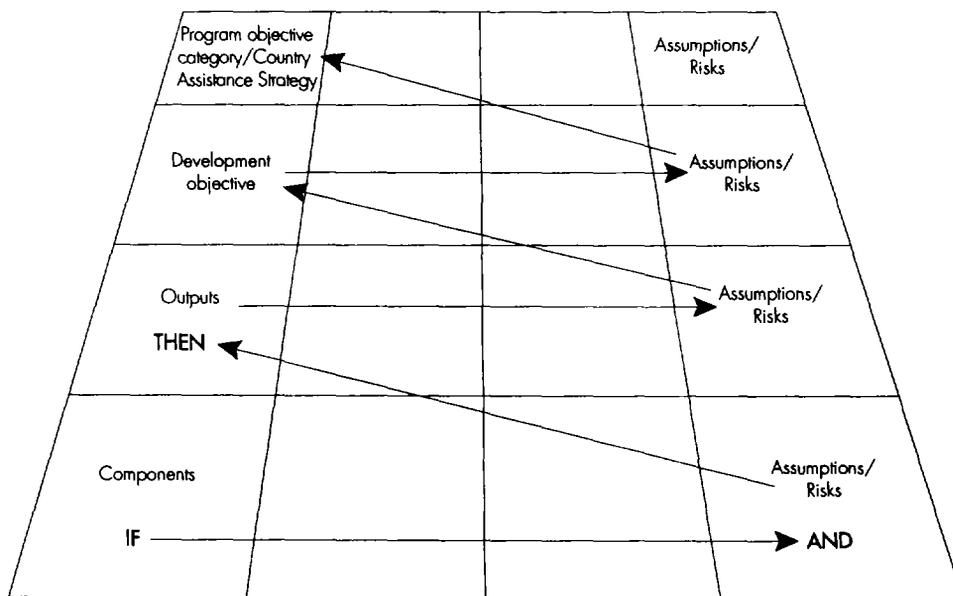
Importance of clarifying assumptions

Assumptions are risk and enabling factors—external conditions that are outside the direct control of the project (figure 1). Achieving objectives can depend on whether assumptions hold true. Assumptions are made about the degree of uncertainty (degree of risk) between different levels of objectives. The lower the uncertainty that certain assumptions will hold true, the stronger the project design. Failing assumptions can derail a project as often as poorly executed outputs.

If cause and effect relationships are the core concept of good project design, necessary and sufficient conditions are the corollary. The cause and effect relationships between levels in the project’s hierarchy of objectives (inputs to outputs, outputs to outcomes and impact, impact to relevance) describe the *necessary conditions* for achieving development objectives (for definition of terms see pages 12–13). This is the internal logic of the project.

Also important are the *sufficient conditions* at each level for achieving the next higher level (conditions in which the next objective can be met). The sufficient condi-

Figure 1. Assumptions/risks about external factors must also be made explicit



Note: This is a simplified representation of the logical framework (shown later in box 4), highlighting the importance of assumptions and risks. The two central columns (blank here) would normally contain performance indicators and monitoring and supervision measures for verifying each indicator. Source: Team Technologies, Inc.

tions between levels in the hierarchy of objectives are the assumptions. This is the external logic of the project. The objectives hierarchy (necessary conditions) plus the assumptions (sufficient conditions) together give one a much clearer idea of the project's design. This is what the logical framework graphically represents.

Hierarchy of objectives and the link to performance indicators

Users of the logical framework have come to agree on a common set of terms (outcomes, results, targets, indicators, outputs, goals, achievements, development objectives). These terms are essentially ways of referring to or classifying objectives.

The logical framework assumes that there are several levels of objectives in a project (a hierarchy of objectives). Though there is no logical limit to the number of levels, most project teams find it difficult to manage more than four levels effectively. The logical framework typically specifies four. The World Bank uses indicators predicated on a framework that specifies three levels of objectives: inputs for project activities, outputs of project activities, and outcomes and impacts. For the World Bank's purposes, inputs and outputs correspond strictly to project management, while outcomes and impacts correspond to the project's development objectives.

The Country Assistance Strategy reflects the agreement between the Bank and its borrowers on a country's overall development goals and the anticipated means—projects, economic and sector work, technical assistance—for the Bank (and other financiers) to help achieve them. Projects must show how their objectives are relevant to the realization of overall country development goals.

For any project a set of performance indicators should be designed within the logical framework. The development of performance indicators begins with the project's objectives and reflects the associated hierarchy of activities and their outputs and intended outcomes for each project component. The activities conducted and the results achieved at lower levels of objectives are inputs toward the achievement of higher-level project objectives, at the institutional, sectoral, program, or country level.⁵ The definition of indicators at each level thus hinges on the project's ultimate objective, which can be modest (for example, to reduce the incidence of preventable disease within a given population by increasing immunizations) or more ambitious in scale (to reduce child mortality).

Organizing the hierarchy of objectives

The logical framework presents schematically the hierarchy of project objectives, the performance indicators for measuring the achievement of each objective, the means of verifying each indicator, and the assumptions (risk and enabling factors) critical to achieving the next objective level. Box 4 illustrates a sample logical framework for a nutrition and child development project in Uganda.

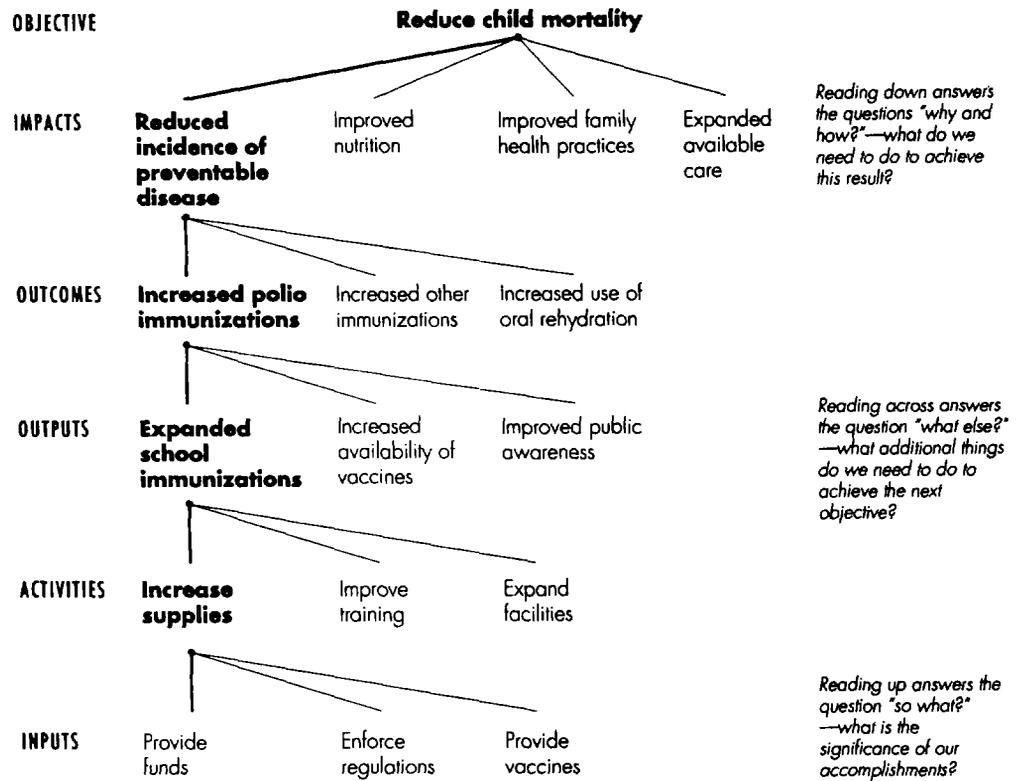
The relationships among project objectives—and the need for performance information—can be also be clarified by graphically depicting the overall program logic and performance expectations in an objectives tree (figure 2). The tree begins with the overarching development objectives of a project (consistent with the objectives of the Country Assistance Strategy), lists the lower-level outputs through which these objectives are

Box 4. Logical framework for the Uganda Nutrition and Child Development Project

	NARRATIVE SUMMARY	PERFORMANCE INDICATORS	MONITORING AND SUPERVISION	ASSUMPTIONS AND RISKS (impact to relevance)
DEVELOPMENT OBJECTIVES	IMPACT <ul style="list-style-type: none"> Improved health, nutrition, and cognitive status of young children 	<ul style="list-style-type: none"> Reduced prevalence of protein energy malnutrition—measured by underweight preschool children—from 25% to 13% by 2003 Reduced micronutrient deficiency problems (IDD prevalence reduced by 50% in endemic areas, anemia in children reduced to 33%, wormload reduced to 50%, and xerophthalmia reduced to 2% by 2003) Net enrollment in grade 1 increased to 80% by 2003 	<ul style="list-style-type: none"> National anthropometric survey Demographic and health survey School enrollment records. 	<ul style="list-style-type: none"> Other national programs in health (immunization, primary health care), food production, primary education are sustained; synergy with these programs will achieve higher project impact
	OUTCOMES <ul style="list-style-type: none"> Improved childcare, nutrition, and health services Improved income generation capacity for women 	<ul style="list-style-type: none"> Number of children reached by services Number of women reached by services 	<ul style="list-style-type: none"> Annual project report Annual project report 	<p>(outcome to impact)</p> <ul style="list-style-type: none"> UNICEF maintains interest in partnership with project Government signs child bill into law Partnership with other donors sustained
PROJECT MANAGEMENT	OUTPUTS <ul style="list-style-type: none"> Established community-based childcare program Established micronutrient program Established women's income component 	<ul style="list-style-type: none"> Number of children and women who participated in program Number of health day outreach efforts launched Number of ECD daycare centers established Number of vitamin A capsules, iron tablets distributed Percentage of salt iodized Number of women who received training in skills for livelihood/childcare enterprise 	<ul style="list-style-type: none"> Project monitoring survey, household surveys Project monitoring reports 	<p>(output to outcome)</p> <ul style="list-style-type: none"> Decentralization policy implemented District governments continue support
	ACTIVITIES <ul style="list-style-type: none"> Community-based growth monitoring programs Health-day outreach programs Matching grants for community ECD centers Mass media campaigns Grants for women's livelihood capacity building Vitamin A capsules, iron tablets distributed Iodizing of salt Deworming campaign 	INPUTS <ul style="list-style-type: none"> Total \$42 million, including operations and maintenance and monitoring and evaluation 	<ul style="list-style-type: none"> Activities will be verified through regular project monitoring 	<p>(activity to output)</p> <ul style="list-style-type: none"> Sufficient interest from communities Mothers apply new skills and knowledge

Task Manager: Marito Garcia.

Figure 2. Partial objectives tree for a hypothetical child health program



Note that this is a partial objectives tree. Only the elements in bold are expanded in the figure to show the various activities and the intended outcomes, outputs, and inputs needed to achieve the project objective. The same treatment can be applied to all elements in the figure to complete the objectives tree. Source: Adapted from Gerald M. Britan, "Measuring Program Performance for Federal Agencies: Issues and Options for Performance Indicators" (Washington, D.C.: U.S. General Accounting Office).

achieved, and shows the specific inputs required to undertake project activities. Using an objectives tree to represent a project's goals helps verify the logic of project design and confirm that the right indicators were defined to measure performance.

An objectives tree should include all the lower-level results that are necessary conditions for achieving higher-level objectives. That includes external factors and assumptions about conditions in the wider project environment that do not actually fall under the control of the project—the external risk and sensitivity factors (see pages 7 and 14).⁶ These aspects must be monitored throughout the project along with impacts, outcomes, outputs, and inputs, and tested during implementation to ensure that the assumptions remain valid.

In the example of the partial objectives tree shown in figure 2, each of the lower-level results is dependent not only on the factors and assumptions shown in the figure but also on others that are not shown. These could be the responsibility of the project shown in the diagram, with the details suppressed here because of space limitations. But they could also be the responsibility of another project or projects or of the government, making them a part of the assumptions and external risk factors underlying the project.

For example, “expanded school immunizations” depends, as shown, on “increasing supplies,” “improving training” and “expanding facilities” all, according to the figure, responsibilities of the project. It also depends on “increased availability of vaccines” and “improved public awareness,” which could be part of the project (though the figure does not show that) or part of another project and therefore part of the project’s assumptions and external risk factors.

A tool to conceptualize, design, and appraise projects, such as an objectives tree or similar analytical tool—and the performance indicators derived from it—should not be considered unchangeable.⁷ It should be continually reevaluated during each phase of project preparation, implementation, and evaluation. If the results analyzed during project implementation point to a need to change the means of achieving project objectives, the mix of inputs (activities to be undertaken) and definition of outputs should be adjusted and new indicators derived to measure the newly defined targets.

The general steps that go into formulating project objectives and constructing the logical structure of a project are important aspects of the identification and preparation stages of the Bank’s project cycle (box 5).⁸

There are different ways to measure performance for any given variable (objective, impact, outcome, output, input). A system of indicators anchored in the logical framework approach is modeled in figure 3. While figure 3 shows a comprehensive system of indicators in order to provide a complete frame of reference, the elements of the system that are not covered in detail by this handbook are shown in dotted lines. These elements are included in OED’s evaluations of project performance.

Types of performance indicators

Results indicators

Results indicators measure project results relative to project objectives. Results are measured at the level determined by a project’s objectives. Remember that following the logical framework approach, they should be defined *starting* with the impact and outcome indicators (and working backwards to the input indicators).

INPUT INDICATORS. Input indicators measure the quantity (and sometimes the quality) of resources provided for project activities. Depending on the project, these can include:

- Funding—counterpart funds, Bank loan funds, cofinancing, grants
- Guarantees
- Human resources—number of person-years for members of the implementation unit, consultants, and technical advisers
- Training
- Equipment, materials, and supplies, or recurrent costs of these items—for example, textbooks, syringes, vaccines, classroom facilities.

OUTPUT INDICATORS. Output indicators measure the quantity (and sometimes the quality) of the goods or services created or provided through the use of inputs. Depending on the project, these can include such elements as:

Box 5. Processes within the logical framework

STEP 1 PROBLEM AND BENEFICIARY ANALYSIS

This analysis attempts to answer several questions: What is the problem at stake, and who is involved in it? What are the needs, expectations, intentions, and motivations of the various stakeholders, disaggregated by gender and other relevant social criteria? Does the problem require external development assistance, or could it be resolved some other way? This step is normally part of economic and sector work or of the project identification and preparation exercise when there is no prior economic and sector work, and it contributes to the formulation of the Country Assistance Strategy.

STEP 2 OBJECTIVES ANALYSIS: CONSIDERATION OF ALTERNATIVES AND PERFORMANCE EXPECTATIONS

This step identifies needs or problems and transforms them into solutions—specific, quantified objectives. Each objective may be broken down into subobjectives and outputs to be achieved at different stages of the project. There are almost always alternative ways of meeting a project's objectives, and the method chosen will affect the configuration of outputs. Thus consideration of alternatives and selection of the most appropriate is part of this step. Consideration of alternatives entails economic, risk and sensitivity, cost-effectiveness, environmental and social analyses, and beneficiary consultation.

Based on the objectives analysis, the main project elements—comprising the whole logical chain, including sector and project objectives, planned outputs, necessary activities, and their inputs—can be graphically represented in the logical framework or an objectives tree (see figures 1 and 2).

Each element—inputs, activities, outputs, outcomes, and impacts, and the risk and enabling factors that affect them—is measurable. This is where indicators come in. Indicators that define and measure each of these elements are identified during the objectives analysis and project planning stage. For this reason it is essential to formulate and express project objectives and outputs in a way that allows measurement of both short-term and longer-term results. Definition of an output, outcome, or impact objective should include:

- Target group (for whom)
- Quantity or level (how much)
- Quality (in terms of design standards and environmental or other impact)
- Time (when it should be accomplished)
- Location (where it should happen)

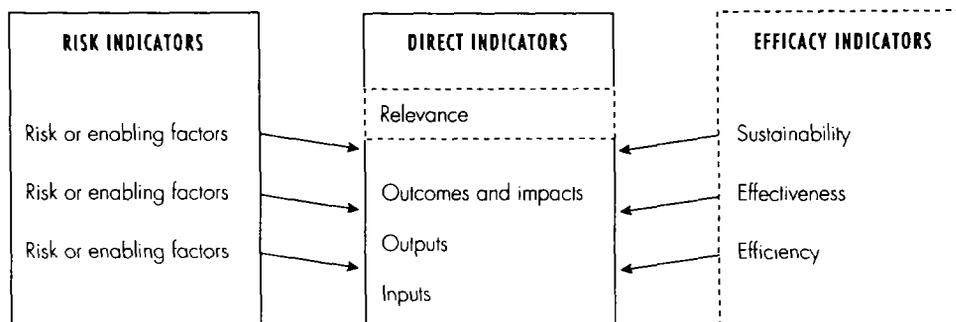
STEP 3 FINALIZATION OF PROJECT DESIGN AND INDICATORS

In this step planners carefully examine the project to ensure that all its elements are logically related. Planners also assess the integrity of indicators and realism of targets at this stage, taking into account all project assumptions and baseline data, and finalize their plans.

- Clients vaccinated (by a health project)
- Farmers visited (an extension project)
- Miles of roads built (a highway project)
- Electricity generation and transmission facilities installed (a rural electrification project)
- Pollution control measures installed or incentives or regulations enforced (a pollution control or air or water quality improvement project).

OUTCOME AND IMPACT INDICATORS. Outcome and impact indicators measure the quantity and quality of the results achieved through the provision of project goods and services. Depending on the kind of project, these can include:

Figure 3. A system of indicators



----- Explicit development of these kinds of indicators is not required for World Bank projects.

- Reduced incidence of disease (through vaccinations)
- Improved farming practices (through extension visits)
- Increased vehicle use or traffic counts (through road construction or improvement)
- Increased rural supply and consumption of electricity (through expansion of electricity network)
- Reduced mortality or lower health costs (through improved family health practices or improved nutrition, or cleaner air and water)

RELEVANCE INDICATORS. Some projects have intended impacts on higher-order objectives that are not captured by direct outcome indicators such as the ones described above. For instance, some projects have national or sectoral objectives, and for them impact must be measured at those levels. Projects may also have unintended—often negative—impacts. These too can be captured by evaluation studies. Relevance indicators measure trends in the wider policy problems that project impacts are expected to influence. If appropriate to the project, these indicators should be used. Depending on the project, these may include:

- Improved national health as measured by health indicators (through improved health care, health system performance)
- Increased farm profits and reduced food costs (through improved farming practices)
- Reduced transportation costs and expanded economic development (through road construction or improvement)
- Improved economic growth and enhanced consumer well-being (through expanded electrification, pollution controls, and other new technology).

A system of indicators drawn from the logical framework measures the relevance of project results as well as outcomes and impacts (see figure 3). However, such effects can be very difficult to attribute to individual project results. For the Bank's monitoring purposes, therefore, measurement of results stops with project impact relative to project objectives. That said, as mentioned above, relevance indicators are appropriate for objectives that are sectoral or national in scope.

Risk indicators

Risk indicators measure the status of the exogenous factors identified as critical through the risk and sensitivity analysis (risk and enabling factors) performed as part of a project's economic analysis. These are the factors that are determined to be the most likely to have a direct influence on the outcome of various aspects of the project (for example, economic prices for power or competitive salaries for project staff)—the assumptions that are made about conditions external to the project. A project's objectives can only be achieved if the logical means-end relationship of the project elements is secure and the external risk factors are favorable.

Efficacy indicators

Efficacy indicators show how well the results at one level of project implementation have been translated into results at the next level: the efficiency of inputs, effectiveness of project outputs, and sustainability of project impact. They measure a project's efficacy in achieving its objectives, rather than its results. The logical framework approach sometimes uses these measures in addition to direct indicators of results.

For the Bank's monitoring purposes, the measurement of results usually stops with impact: Bank staff are not expected to measure sustainability, effectiveness, or efficiency as part of project supervision or Implementation Completion Reports but rather to stick to "direct results" indicators. However, efficacy indicators can be relevant indicators of results if efficiency (of an institution, for example) is a project objective. Moreover, OED uses these measures in its evaluations of project performance. It is for these reasons that these descriptions of indicators are included here.

EFFICIENCY INDICATORS. Efficiency indicators usually represent the ratio of inputs needed per unit of output produced—for example, physical inputs, dollars, or labor required per unit of output. Accountability indicators (which are the central focus of much project and financial auditing) can be considered a subset of efficiency indicators. They measure the extent to which resources are available for and appropriately applied to the activities for which they were targeted.

EFFECTIVENESS INDICATORS. Effectiveness indicators usually represent the ratio of outputs (or the resources used to produce the outputs) per unit of project outcome or impact, or the degree to which outputs affect outcomes and impacts. For example:

- Number of vaccinations administered (or their cost) per unit decline in morbidity rate (illness prevented) or per unit decline in mortality rate
- Number of farmers visited per measured change in farm practices (number of farmers adopting new practices), or number of farmers adopting new practices per unit increase in agricultural productivity
- Miles of road built per unit increase in vehicle usage, or new road usage per unit decrease in traffic congestion.

SUSTAINABILITY INDICATORS. Sustainability indicators represent the persistence of project benefits over time, particularly after project funding ends. They could include, for example:

- Disease incidence trends after external funding for a vaccination project ends
- Persistence of changed farming practices after extension visits are completed
- Maintenance and use of roads after highway construction ends
- Persistence of institutions (programs, organizations, relationships, and so on) created to deliver project benefits.

Information on performance as measured by impact, outcome, output, input, efficacy, and risk indicators can be expressed and gathered in different ways. The choice of indicator and means of collection depend on data availability, time constraints, and cost-benefit considerations as well as the relationships between the variables.

Ways of measuring performance

Direct measures

Direct measures correspond precisely to results at any performance level. For instance, quantities of goods delivered or counts of clients served are direct measures of output, instances of change in beneficiary behavior are a direct measure of project outcome, and a decrease in infant mortality is a direct measure of project impact. A given variable could possibly serve as an indicator of results at any of various levels (input, output, outcome, or impact) depending on the project objectives.

Indirect measures

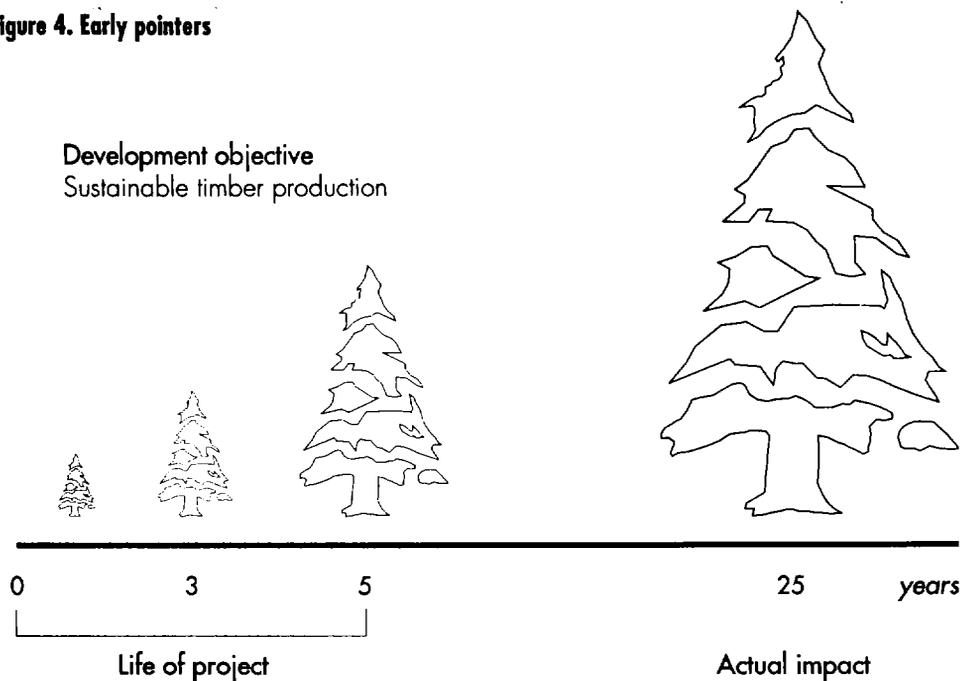
Indirect measures correspond less precisely than direct measures to the performance sought. They are often used where direct measures are too difficult, inconvenient, or costly to obtain. Indirect measures are based on a known relationship between the performance variable and the measure chosen to express it—for example, using lower farmgate prices as an indirect indicator of increased agricultural productivity, using declining freight or taxi tariffs as an indirect measure of decreasing traffic congestion, or using reduced numbers of consumer complaints as an indirect indicator of improved customer processing.

Early pointers: intermediate and leading indicators

At times information on likely project results is needed before final performance data are available. At other times it is important to gauge whether a project is on track even though final results have not yet been achieved. In both cases intermediate or leading indicators can provide an early assessment of performance (figure 4).

Intermediate indicators measure intermediate results or intervening steps toward project objectives. They usually measure changes associated with the ultimate impact sought but for which information can be obtained earlier. For example, fertilizer purchases could be used as a preliminary indicator of changed farming practices, or increased nutritional knowledge as an indicator of improved eating practices. Two points must be kept in mind, however. First, intermediate indicators often represent

Figure 4. Early pointers



Source: Team Technologies, Inc.

preliminary links in a causal chain, so their usefulness depends on the validity of the hypothesis that links those measures to final performance results. Second, intermediate indicators sometimes represent results from initial or selected program sites, so their usefulness depends on the extent to which they prove to be representative.

In addition, it is sometimes possible to identify leading indicators (or indexes of indicators) that are clearly linked with longer-term results. While similar to intermediate indicators in concept, leading indicators generally have multiple applications and a statistically valid record of reliability (for example, the U.S. index of leading economic indicators).

Quantitative and qualitative measures

For many Bank-financed projects, indicators of impacts, outcomes, outputs, and inputs are easily quantified, that is, measured by defined numerical values. These are typically the basis for calculations of economic rate of return or net present value during appraisal. During implementation the monitoring and evaluation system of the project or entity being financed can provide these data by recording, for example, the number of students matriculated and the rate of repetition, the number of farmers visited by extension workers, or the quantities of fuel consumed, electricity sold, or technical capacity lost. Data on kilometers of road maintained, tolls collected, volume of traffic, and so on can easily be collected. In fact, there is a danger of collecting too much information. In some instances the cost of collecting data on project outcomes is high—for example, a new system may have to be developed to measure educational attainment. It is important to determine how precise and timely information needs to be, and who will collect it and at what cost, before information-gathering efforts are initiated.

A project's outcomes and impacts may not manifest themselves as directly measurable numeric information, however. These projects' effects may be felt more in terms of the attitudes of beneficiaries. For example, do parents now have more input into their children's education? Is teacher morale higher? A purely narrative description of these effects may be insufficient to measure results, however. It may be necessary to devise ways of measuring outcomes and impacts in quantitative terms, converting qualitative descriptions into quantitative information. This conversion can be achieved using survey techniques such as beneficiary assessments, rapid rural appraisals, or focus group interviews with structured questions. The information gained through these techniques can be used to calculate nominal measures, rank orderings of categories, and frequency counts. Ratio and interval scales can also be used. The potential for quantifying information on project results should not be underestimated.

Measurement scope

Measurement scope refers to the use of sample populations. Performance indicators sometimes measure results directly for an entire target population (of individuals or organizations) through administrative records, observations, or census surveys. Often, however, the scope of measurement is limited to a sample of targets or sites. This approach raises an additional technical issue: how reliably can overall project performance be statistically inferred on the basis of this sample? Sometimes performance is measured in only one project setting, or in a very few, as case studies instead of statistical sampling. While case studies can provide useful information on how projects work (or why they do not work as expected) and how they can be improved, care must be taken (even more than in the use of samples) not to assume that results from one site necessarily represent project performance overall. Accordingly, such case studies are usually conducted in the context of special studies (see below) rather than as a replacement for broader performance data.

Special studies

Sometimes a project's routine monitoring and evaluation data do not provide sufficient information. If an unexpected problem arises, additional in-depth analysis through special studies can guide the way toward solving it—and avoiding it in the future. Special studies are formative evaluations of the fundamentals of problems and their origins, and in that way differ from monitoring indicators, which are part of an early warning system. For instance, project managers might need to learn more about the causal links among project outputs, outcomes, and impacts, especially when indicators reveal that the broader purposes of a project are not being achieved even though its planned outputs are being delivered. In this case something clearly is wrong: the project logic may be faulty, assumptions about risk and enabling factors may be invalid, or some necessary input may be lacking. Special studies often provide important feedback for project redesign and higher-level policy debates.

General principles for selecting indicators

Three general principles should guide the selection of performance indicators: indicators must be meaningful and relevant, a reliable system for collecting the requisite data must be developed in a timely fashion, and the borrower's institutional capacity for using a monitoring and evaluation system—and its willingness to do so—must be taken into account. These general principles imply the following considerations:⁹

- *Relevance.* The indicators selected must be relevant to the basic sectoral development objectives of the project and, if possible, to overall country objectives.
- *Selectivity.* The indicators chosen for monitoring purposes should be few and meaningful. It is recommended that the Bank monitor no more than a dozen indicators, at least half of them impact indicators that explicitly measure project impact against each major development objective.
- *Practicality of indicators, borrower ownership, and data collection.* If performance indicators are to meaningfully reflect a project's objectives, they should be selected jointly by the borrower and the Bank during participatory project preparation, and the data they measure should be useful to both project and country. The data required to compile the key indicators must be easily available; if collecting the data will require a special effort, this need should be identified early in the project cycle and included in the project design. Data collection efforts can then be programmed directly into project implementation or contracted to institutions that do survey work at the sectoral, regional, or national level.
- *Intermediate and leading indicators.* In the absence of more definite impact indicators, early pointers of development impact may be used during project implementation to indicate progress toward achieving project objectives. In many cases outcome indicators together with indicators of risk factors can serve as suitable intermediate or leading indicators of impact.
- *Quantitative and qualitative indicators.* To the extent possible, performance indicators should allow for quantitative measurement of development impact. For some project objectives (for instance, capacity building) it may be necessary to develop qualitative indicators to measure success, which should still allow credible and dispassionate monitoring. (For details on converting qualitative indicators to quantitative measures of the qualitative aspects being investigated, see pages 16–17.)

Problems with defining indicators

A previous section described the different types of indicators used to measure levels of performance. However, it is sometimes difficult to distinguish between a project's outputs and outcomes, for example, or between outcomes and impacts. When defining indicators, it is important to think of the typology of indicators as a continuum mirroring the logical means-end relationship of the project: *inputs* to various activities, which yield *outputs*, all of which contribute to *outcomes* and *impacts*. A particular measure's logical relation to the project's strategic objective will define the type of indicator that it represents.

Consider an agricultural extension project. Two possible indicators are the number of farmers trained and the number of farmers adopting the recommended techniques.

The second indicator is obviously an outcome, but what about the first? Training is an output of the project, but it is also an input into improving agricultural practices. This example demonstrates the need to think of indicators in terms of a continuum, with inputs leading through activities to certain outputs that lead to desired outcomes and impacts. It is not always easy to distinguish between outputs and outcomes or impacts, whereas inputs are usually straightforward. Consider a project that hopes to improve girl's employment prospects by improving their access to formal and vocational education. An output indicator would be the number of girls graduating from secondary and vocational schools, an outcome indicator would be the number of girls employed from project schools, and an impact indicator would be their earnings relative to earlier levels or relative to average cohort earnings.

Problems with measuring impact

Impact indicators are the most difficult to measure and collect, mainly because of lags between project implementation and impact or, put another way, between the time of impact and the time it is feasible to collect data relating to impact. But the monitoring of project impact *during* implementation is one of the main motivations for using performance monitoring indicators. Using leading indicators and intermediate indicators as proxies for impact is a way to tackle the measurement problem. Beneficiary assessments, rapid rural appraisals, and focus group interviews are useful ways of collecting qualitative impact data. Before and after household and community surveys are excellent tools for collecting comprehensive impact data, but the time and cost required make them impractical for regular project monitoring. They are more often used during project identification, intermediate checkpoints (such as midterm reviews), implementation completion, and ex post evaluation.

When selecting indicators during project preparation and appraisal, the borrower (with the Bank's assistance, as needed) should use baseline data and comparative data from other programs to set targets for the indicators it will monitor—that is, the minimum values that it expects to aim for. Some of the indicator menus issued by the Bank's Central Vice Presidencies provide comparator values as an indication of what is high and low for a given variable. Bank staff should consult the relevant sector departments of the Central Vice Presidencies on the selection of indicators for a project and should seek their advice on targets.

***Indicator benchmarks
and international
comparators***

How do performance monitoring indicators affect the Bank's work?

Indicators play an integral role in the Bank's work, from economic and sector work, through the entire project cycle, to ex post evaluation.

Indicators of sector performance can be both derived from and used in the analysis done as part of economic and sector work and used later to inform project development, project impact monitoring, and sector monitoring. Besides providing a framework for evaluating sector performance, sector-specific performance indicators can

***Economic and
sector work***

help policymakers, task managers, and Bank staff rationalize a country assistance and lending strategy, select project strategies, and create a framework for monitoring project activities (see below). Sectoral indicators, obtained from sector work or from generally available sector data, are especially useful during project identification and appraisal to clarify project objectives and later to assess impact.

Project cycle A schematic representation of how performance monitoring indicators fit into the project cycle is shown in figure 5.

Project identification, preparation, and preappraisal

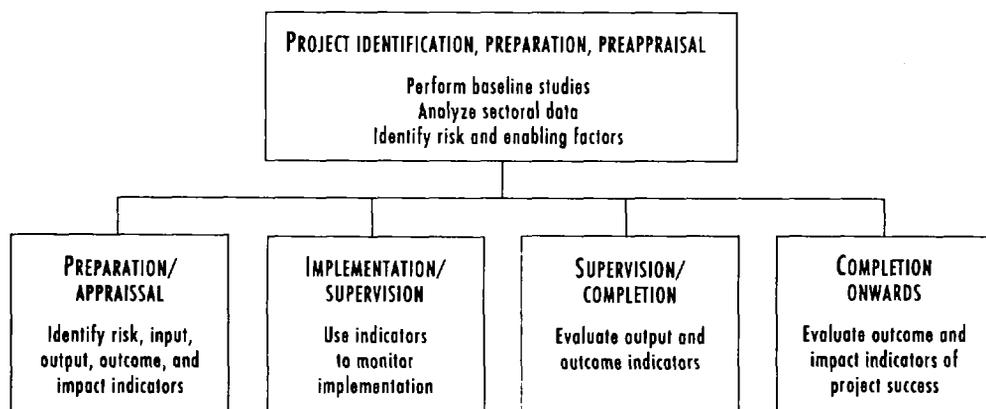
Project planning starts by defining objectives that reflect a project’s desired development impact; these objectives may be hierarchically arranged but they have to be defined in terms of the measurable targets on which performance indicators will be based. The proposed objectives guide the selection of a first-round set of indicators during project identification and design.

As part of the problem, beneficiary, and objectives analyses, several questions should be discussed with the borrower and other stakeholders: What are we trying to achieve? How do we measure what we are achieving? What types of indicators or measures will we need to develop? What target values should we use?

The process of selecting performance indicators helps borrowers and Bank staff define project objectives more clearly, set measurable goals, and ensure that a project’s activities lead logically to the realization of its objectives. During project preparation it is important to develop a clear idea of the baseline values of impact indicators and the planned target values for the development impact of the project, as well as the means for measuring progress (the logical chain of indicators).

This activity helps the borrower and the Bank assess the realism of project objectives and determine data availability and collection methods for measuring indicators. (The next section discusses issues associated with definition of objectives and data measurement.) Concentrating on how to quantify and measure impact at this stage helps the borrower and the Bank improve the design and consistency of project components to achieve the desired results as cost-effectively as possible. This effort may

Figure 5. Performance indicators and the project cycle



also point to the need to develop monitoring capacity before implementing the project or to build monitoring and evaluation capacity development into the project.

Appraisal and negotiations

As project planning is finalized, project objectives are translated into specific project components. Indicators for measuring progress toward each objective and for monitoring the provision of project inputs and the state of risk and enabling factors identified in the economic and risk sensitivity analyses are also finalized during appraisal.

The implementation plan developed by the borrower and appraised by the Bank must include the performance monitoring indicators—inputs, outputs, outcome, and impact indicators—for each aspect of project implementation. During appraisal the borrower and the Bank agree on no more than about a half-dozen of the most important input and output indicators and about the same number of outcome and impact indicators—key performance indicators that the Bank will monitor. These indicators—as agreed performance benchmarks, not covenanted targets—are set out in the project appraisal documentation and in the Bank’s legal agreement with the entity responsible for project implementation (see Bank Procedure 10.00, Annex B and related Operational Memorandums). In cases where target values are critical to the attainment of project objectives, the borrower and the Bank may also want to make them a covenant of the loan agreement (see page 26).

Implementation and supervision

During project implementation the borrower and project implementation unit monitor the indicators developed during project design, following the schedule of the implementation plan. During regular supervision missions and the midterm review the Bank monitors the key indicators defined and agreed with the borrower at appraisal. These indicators form the basis for the Bank’s measures of implementation performance (IP ratings) and impact (development objective, or DO ratings) on Form 590. If the indicators originally developed for the project become inappropriate because external conditions change or project design is restructured, the Bank and borrower develop new indicators to reflect the changed circumstances.

Evaluation

After implementation is completed, the achievement of project objectives is assessed using measurable indicators—the outcome and impact indicators developed during project design—that compare the project’s actual impact with its intended impact. The use of indicators removes subjectivity from evaluations, giving them a more objective basis.

The logic of project design governs the logic of monitoring: the implementation unit monitors inputs and outputs in greater detail than does the borrowing government or the Bank. Implementation managers are primarily concerned with the tactics of program implementation, while borrowers and Bank staff are more concerned with the strategic implications of project implementation and alternatives for realizing project objectives.

***Performance
indicators and
project management***

To meet the different information needs of the various stakeholders, performance indicators usually need to be hierarchically structured. This structure can be accomplished through nested networks of partially overlapping performance information systems in which lower-level performance indicators are summarized, or selectively skimmed, as a basis for higher-level information. The following sections describe the different performance indicators and information needs of the various actors responsible for project implementation. (This information is summarized in box 6.)

Field-level implementers

Implementation managers are primarily concerned with the methods used to implement a particular project or program component. Within their relatively narrow areas of responsibility, they need to know that necessary inputs (human, financial, and physical resources) are available and that planned outputs (goods and services) are being produced. They also need to know that resources are being used legitimately, that financial accountability is ensured, and that inputs are being efficiently transformed into outputs. Implementation managers in the field also need at least some information on program outcomes and impacts; that is, they need to know the extent to which program outputs are achieving their intended results so that they can fine-tune project implementation and motivate performance.

Implementation unit managers

The managers of an implementation unit (or of whatever organizational unit is responsible for overall project management) are usually responsible for implementing an entire

Box 6. Project management and performance information needs

IMPLEMENTERS IN THE FIELD NEED

- Input indicators
- Output indicators
- [Efficiency indicators]
- Risk indicators
- Some outcome and impact indicators

THE IMPLEMENTATION UNIT NEEDS

- Summary input and output indicators, including site-comparative indicators as appropriate
- Outcome indicators, including site-comparative indicators as appropriate
- [Effectiveness indicators]
- Risk indicators
- Impact indicators

THE BORROWER AND THE BANK NEED

- Summary input indicators
- Summary output indicators
- Risk indicators
- Key outcome, impact, [and relevance] indicators
- [Sustainability indicators]

Note: Indicators in brackets are not a required part of Bank monitoring or project supervision.

program or a major project component. This responsibility involves a range of activities, often across a number of sites, aimed at achieving some strategic objective. Because these managers have a primary responsibility for project implementation, they should play a supporting role in defining strategic objectives, choosing among them or articulating the underlying policies from which these objectives derive during project preparation.

Implementation unit managers are concerned with managing their program better, selecting and fine-tuning project activities to improve outcomes, and enhancing project impact. Thus they need summary information on project inputs and outputs, particularly comparative information across sites, so that they can identify emerging problems and direct managerial attention and resources to solving them. More important, they need comparative information on project outcomes. Implementation managers also need at least some information on project impact to validate the significance of their project strategy.

Borrower officials and Bank staff

Representatives of the borrower and Bank staff are primarily concerned with strategic management. They have participated in articulating the policy assumptions that underlie the project and the strategic objectives the project is intended to achieve. Moreover, they must continue to push these objectives in the context of a dynamic external environment. Thus they need summary information on project inputs and outputs to be sure that any emerging implementation or outcome problems are being identified and addressed at appropriate project management levels and to be able to answer questions about the project. To manage strategically, however, borrowers and Bank staff most need comparative information on project outcomes and impacts and risk factors. When impact is measured in relation to the cost of project inputs, this information can also feed directly into a performance-based budget system. In addition, in the context of the Country Portfolio Performance Review or Country Assistance Strategy update, the borrower and Bank managers need information on the national trends to which projects are expected to contribute.

Some related issues

Several factors that are part of good practice in monitoring and evaluation are integral to the effective use of project performance data, in particular data collection and management, the institutional arrangements for managing information, and the use of feedback from monitoring and evaluation. In addition, users need to be aware of the difference between loan covenants and indicators and potential pitfalls in the definition of indicators. For performance monitoring indicators to work, a management structure and incentives that value results must be in place. Performance indicators are a tool: on their own they can do nothing, but in the proper environment they inspire action.

It is critical that managers—Bank, borrower, and project managers—regard performance measurement as an integral part of their institution’s mission and strategic plan.¹⁰ Often they do not; instead, they see it as an adjunct to the plan, in the same

Good practice in monitoring and evaluation

way that they may see evaluation as a requirement to be satisfied after the more important work of project implementation is done.¹¹ To be effective monitoring and evaluation must be addressed during project design. Once project planners have carefully defined the strategic objectives and selected logical indicators, their next consideration should be the requirements for data collection and management, institutional arrangements and capacity building, and the use of feedback from the data.

Data collection and management

The nature of a variable determines the logical source of data about it. Indicators of inputs and of some outputs of project activities are derived primarily from project records; however, indicators of some outputs, outcomes, and impacts may require that data be collected using surveys or special studies, including those that use participatory methods. Where it is possible, it is almost always better to piggyback regular surveys onto existing nationally or internationally supported surveys (such as the Living Standards Measurement Study) than to create a data collection facility. Special studies may be managed by the project unit directly or subcontracted to a private entity.

Any proposal to collect data for an indicator requires a discussion of:

- Objectives of the study or survey
- Sources of data
- Choices and proposed method of collection
- Likely reliability of the data.

Collection of some indicators, particularly outcome and impact indicators (such as morbidity and mortality rates, educational achievement, or crop production) may depend on the existence and quality of national census or survey systems. Before choosing such project indicators, the borrower and the Bank must confirm that the necessary systems are in place and reliable and that the available data are statistically valid for the population or area covered by the project. The complexity of statistics and the problems of attributing causality mean that in many cases it is better to use service delivery and beneficiary response as proxy measures than to attempt to measure impact directly.

Many output indicators are derived from records kept by the participating agencies, often at project field sites. For this reason, for purposes of project monitoring and evaluation design (including indicator selection), project planners should examine the implementer's record-keeping and reporting procedures to assess its capacity to generate data.

The essential points are that data should be collected and used close to the source and that data collection be cost-effective and reliable. It is important not to create a separate measurement bureaucracy within a project structure. Having such a bureaucratic home for data production is not usually cost-effective and presents the risk that those responsible for producing the data may have little contact with those responsible for using it. Thus the data users do not fully understand what is behind the numbers they are given to use, and the data collectors have little appreciation for the

issues that stakeholders and senior project managers face, for which performance data would be useful. Just as performance measurement should be fully integrated with project design, information generated should be integrated with the project's management structure. As with any other project component, the benefits of using performance data must at least equal the cost of collecting them. A project can provide the best information at the least cost by using existing data, sampling techniques, rapid appraisal methods, and other creative collection methods.

A few other considerations about data collection should guide the design of indicators. Above all, the data should measure *results*, not just processes. The performance measured by the data should focus on what the project is accomplishing, especially in terms of its impact on people. The point is not only to know what projects are doing, but to know whether they are doing any good.

Selectivity is desirable. Performance analysis should be limited to the few areas that are directly relevant to the project's strategic objectives, as defined by the borrower and Bank.

Finally, performance measurement systems should use data that are not construed as threatening by those who are reporting it. Simply telling project managers—whether borrowers, Bank staff, or those working for them—to report data on their projects without actively involving them in the performance measurement process, without explaining how and by whom the data are going to be used, and without assuring them that the data will not be used to judge them personally is likely to be viewed as threatening. Relying on such a compliance mode of performance measurement is likely to backfire, not only minimizing manager ownership but also likely producing bureaucratic resistance and possibly data corruption.

Institutional arrangements and capacity building

Data collection arrangements have implications for the institutional arrangements between the implementation unit, the borrower, and the Bank. The rationale for indicators demands that the indicator data be of value to the borrower, not just to the Bank. A project's overall monitoring and evaluation design should build on the reporting arrangements already used by the implementation unit and the borrower, while further developing the technical skills they need to plan information needs, design data collection, execute studies and surveys, analyze data, and report results in a format that is relevant to project management. If necessary, the Bank can finance technical assistance and equipment required to design and implement monitoring and evaluation systems and to meet training needs.

Feedback from monitoring and evaluation efforts and interpreting indicators

Care should be taken to time data collection activities so that information will be available when it is needed, for example at the time of the Bank's portfolio or midterm reviews. Projects for which operating performance standards are specified as an objective, or for which decentralized processes call for local capacity to plan and manage work programs and budgets, will need special consideration of how indicator findings are used to inform decisions.

Project indicators are best interpreted through comparison. Ideally, impact is evaluated by comparing baseline data with project outcomes, to provide an idea of what the indicators would be if the project had not been carried out. But because such analysis is sometimes not practical, analysis of indicators can use other kinds of comparisons: actual results relative to targets, before and after analysis, time series (more illustrative than simple before and after comparisons), or comparisons of control groups.

Trends or fluctuations are common in the values that are used to measure outputs or outcomes and impacts. If this is the case, time series or control groups should be used. Time series data capture trends or fluctuations, and control groups help verify attribution of causality. For example, the control group chosen is critical for comparing the increase in average educational attainment or income among a project's beneficiaries with the increase in a nonproject area: the control group must be identical to the project sample in all respects other than the presence of the project. Finally, any interpretation of indicators must consider the relationship between exogenous factors and the indicators they may influence. This is one reason why the monitoring of risk factors is so important.

Relation to loan covenants

Indicators are facts about project implementation results, not actions. Thus standard practice by the Bank and borrowers is to consider performance targets as indicative and not legally binding. The understanding is that the agreed targets are used primarily to gauge progress in project implementation and in realizing development objectives. However, in instances where attainment of certain indicators or targets is considered essential to the attainment of a project's objectives (for example, in the case of certain financial indicators of a profit-making entity supported by a project), these indicators (target values) should be incorporated in the legal documents not only as performance benchmarks but also as a loan covenant (see page 21).

Working at cross purposes

Projects sometimes lack well-defined objectives because the borrower and the Bank cannot agree on what a project's purposes are or should be. For example, it is sometimes unclear whether a project's ultimate objective is to transfer resources or to truly alleviate poverty. A project's purposes and strategic objectives must be agreed on early, and performance indicators provide the clearest guide for management action when they logically reflect clear program priorities. In practice, however, programs may encompass multiple and even conflicting objectives. While it is difficult to portray multiple strategic purposes within a single objectives tree or logical framework, it may sometimes be possible to define parallel objectives trees reflecting these multiple purposes. The performance data could then be useful in making decisions that result in tradeoffs among competing objectives, especially if such objectives can be prioritized or weighted.¹²

Another difficulty is that clearly defined objectives bring a measure of accountability that may make some officials uncomfortable. In some cases ambiguous project objectives may, in fact, be politically desirable. Delineating useful performance indicators may prove difficult if this is the case; and in the absence of willingness to commit to clearly defined objectives, the Bank should dissociate itself from the project.

In the end performance monitoring indicators and the feedback they provide are only as good as the underlying analysis (economic and financial analysis, economic and sector work, social and environmental assessment) supporting the project design, and the data to be assessed over time. The logical framework approach to project formulation is only a structure for project design and evaluation, not the full extent of project design or evaluation. None of the tools described in this handbook can replace sound economic, financial, social, environmental, and risk and sensitivity analysis or comprehensive monitoring and evaluation. Together, the analysis, the logical framework, and the indicators form a system for continuous analysis and a holistic approach to project design, monitoring, and evaluation.

Notes

1. *Effective Implementation: Key to Development Impact*, September 1992.
2. *An Overview of Monitoring and Evaluation in the World Bank*, OED Report 13247, June 30, 1994, and *Monitoring and Evaluation Plans in Projects Approved in Fiscal Year 1995*, OED draft report, October 6, 1995.
3. The logical framework approach and indicator typology described in this section draw extensively from material prepared by R. Moses Thompson, Team Technologies Inc.; Gerald M. Britan, "Measuring Program Performance for Federal Agencies: Issues and Options for Performance Indicators," prepared for the U.S. General Accounting Office, 1991; and "Guidelines for Result-Based Planning, Management and Monitoring," preliminary version, from the Swedish International Development Agency, January 1995.
4. Several formal techniques for collaborative project planning and management are variations on the overall logical framework concept described here: Logical frameworks, ZOPP, and TeamUP, for example. Appendix 1 of the *World Bank Participation Sourcebook* (February 1996) describes ZOPP (objectives-oriented project planning), TeamUP, and other methods and tools that support participatory development, and provides additional references.
5. The relationship among project objectives may also involve aggregation across space, with results in different project locations added to yield regional objectives and achievements. Hierarchically linked and spatially aggregated objectives often exist in tandem. For instance, a national child health project whose overall objective is to reduce child mortality may have a subobjective of reducing the incidence of preventable disease by educating and inoculating a certain number of individuals nationwide—that is, the sum of the individuals reached by individual clinics throughout the nation.
6. See also *Handbook on Economic Analysis of Investment Operations* (Washington, D.C.: World Bank, 1996), Chapter 10, "Risk and Sensitivity Analysis."
7. Various formal logical framework techniques use tools such as problem and objective trees, situation and SWOT (strengths-weaknesses-opportunities-threats) analyses, and project planning matrixes to graphically represent the problem, beneficiary, and objectives analysis.
8. Even if a borrower is not explicitly aware of or does not follow the logical framework approach in designing a project, the Bank can follow the approach to appraise the project.
9. This discussion draws heavily on a report of the East Asia Working Group on Project Performance Monitoring Indicators prepared for consideration by the East Asia Regional Management Group. The working group included staff from the East Asia Region, the Asia Technical Department, Human Resources Services, OED, and Operations Policy.
10. For additional discussion, see *Monitoring and Evaluation Plans in Staff Appraisal Reports Issued in Fiscal Year 1995: A Follow-up to OED's Report "An Overview of Monitoring and Evaluation in the World Bank,"* OED Report 15222, December 29, 1995.
11. Thomas J. Cook, Jerry VanSant, Leslie Stewart, and Jamie Adrian, "Performance Measurement: Lessons Learned for Development Management," *World Development* 23(8): 1303–15 (1995).
12. Britan, p. 20.

SECTORAL NOTES ON INDICATORS

To help Bank staff and borrowers select and use performance indicators, the Bank is developing sectoral notes that discuss the use of indicators in relation to the major objectives or categories of problems normally addressed in Bank-financed projects. Each note includes menus of possible indicators.

What topics do the notes cover?

Eighteen sectoral notes will eventually be prepared. They will cover each sector in which the Bank works and areas of emphasis that cross economic and social sectors, such as environmental concerns, poverty reduction, public sector management, and technical assistance. Of the sector performance indicator notes planned, seventeen have been issued:

Agriculture	Poverty reduction
Economic adjustment	Power
Education	Private sector development
Environment	Technical assistance
Financial sector	Telecommunications
Housing	Transport
Industry and mining	Urban development
Oil and gas	Water and wastewater
Population, health, and nutrition	

The only note that remains to be issued is public sector management (expected in June 1996). All of the notes except one are in their first edition, that is, they will be revised as the Bank and its clients gain experience with the use of indicators. (The education note is in its second edition and is considered to be an example of best practice.) Further work on these notes will:

- Standardize them to make them more consistent with the methodological framework described earlier
- Incorporate more best practices and lessons learned
- Incorporate international comparator data at the global and regional levels to facilitate benchmarking among countries, provinces, regions, and so on, to appreciate what is high or low in a given instance.

How were the notes developed?

As part of the Next Steps Action Plan, the Central Vice Presidencies, sector departments, and Development Economics Vice Presidency were asked to develop sector-specific performance monitoring indicators. The Operations Policy Department (OPR) coordinated the efforts to develop the indicator notes, facilitating the exchange of ideas among sector departments and reviewing the product. After several departments had produced drafts, OPR formed a quality review group comprising senior staff from the Regions, the Central Vice Presidencies, and OED. The group reviewed all of the notes and developed a framework for consistency in approach.

From these initial efforts, the Bank developed the framework for performance indicators that has been applied in most of these notes. Most of the sector notes:

- Follow a typology of indicators based on a logical framework approach to project design (indicators of project inputs, outputs, outcomes, impacts, risk and enabling factors, efficiency, effectiveness, and relevance); and
- Provide an executive summary, a menu of recommended key indicators, and real examples of indicators used in Bank-financed projects.

How are indicators selected from the notes?

The notes are reference materials to specific sectors and to overarching concerns such as poverty reduction, macroeconomic adjustment, and environmental issues. They are meant to guide task managers and borrowers in applying performance monitoring indicators. They are not, however, intended to replace the judgment or knowledge of task managers or borrowers. The notes provide menus of indicators that are neither exhaustive nor mandatory—indicators are project-specific and must be customized by the borrower and task manager to project, sector, and country circumstances. Since every project has its own unique objectives, task managers and borrowers must develop indicators that correspond to these objectives, and not restrict themselves to the menus provided in the notes. Conversely, care should be taken not to “order the entire menu;” rather, it should be treated as an indicative list from which to choose the most appropriate selections.

Where are the notes available?

The notes are issued by the originating Central Vice Presidencies to all Senior Operations Advisers, directors, project advisers, and sector division chiefs. Staff members should have received copies of the notes pertaining to the sectors that their department covers or have been notified that the notes are available. Additional copies are available from the originating departments. The notes will also be available in electronic form through the Bank’s Enterprise Network (contact the relevant task manager listed below to confirm a note’s electronic availability). The departments, task managers for the notes, and persons to contact for a copy of the note are:

Sector	Department	Task manager	Contact person and extension	
Agriculture	AGR	Cornelis de Haan	Joyce Sabaya	38959
Economic adjustment	DEC	Deborah Wetzel	Deborah Wetzel	31698
Education*	HDD	Sverrir Sigurdsson	Jae-Shin Yang	81418
Environment	ENV	John Dixon	John Dixon	38594
Financial sector	FSD	David Scott/ Monika Queisser	Hedia Arbi	34663
Housing and urban development	TWU	Patricia Annez	Laura O'Connor	37009
Industry and mining	IEN	Felix Remy	Elisa Torre	80323
Oil and gas	IEN	William Porter	Kyran O'Sullivan	32722
Population, health, and nutrition	HDD	Tom Merrick	Vivian Ocran	33639
Poverty reduction	PSP	Soniya Carvalho	Soniya Carvalho	35705
Power	IEN	Jean-Pierre Charpentier	Kyran O'Sullivan	32722
Private sector development	PSD	Syed Mahmood	Shirley Wallace	38131
Public sector management	PSP	Michael L.O. Stevens	Michael Stevens	37493
Technical assistance	OPR	Nimrod Raphaeli	Nimrod Raphaeli	84015
Telecommunications	IEN	Rogati Kayani	Rogati Kayani	34515
Transport	TWU	Colin Gannon	Colin Gannon	85784
Water and wastewater	TWU	Guillermo Yepes	Rose Poole	33749

* Second edition note issued.

How to learn more

Besides developing their second-edition notes, the Central Vice Presidencies are disseminating the first edition notes and advising Regional staff on the use of performance monitoring indicators. The Central Vice Presidencies will continue to sponsor workshops on their indicator notes and, when requested, advise project staff on all aspects of the use of performance monitoring indicators. In addition, the Bank's Learning and Leadership Center is providing training on performance indicators as part of its regular courses on project preparation, appraisal, and supervision.

EXAMPLES OF INDICATORS

The following examples of key performance indicators were developed for several Bank-financed projects. These projects represent current best practice in the use of performance monitoring indicators; most were highlighted in OED's fiscal 1995 follow-up review of monitoring and evaluation (*Monitoring and Evaluation Plans in Staff Appraisal Reports Issued in Fiscal Year 95*, Report 15222). For each project, a matrix presents the project's objectives, with indicators of inputs, outputs, risk factors, outcomes, and impacts. The matrixes do not list all the detailed indicators listed in the borrower's Project Implementation Plan; they only show the key indicators that the Bank will monitor as the basis for project supervision and evaluation.

These matrixes were devised by the project's task managers with OPR's guidance. The information set out in these matrixes was also given in the Staff Appraisal Report for each of the projects, although not in this format. In the future the most important project outcome and impact indicators, such as those presented in these matrixes, should be listed in every project appraisal document and monitored using Form 590.

**Table 1. Summary of objectives and key performance indicators,
Honduras Basic Education Project (Staff Appraisal Report 13791-HO, March 8, 1995)**

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
Improve quality of learning and student performance in the primary education cycle	<ul style="list-style-type: none"> • IDA credit (\$30 million) • Government funds (\$9.8 million) • German (KfW) funds (\$13.3 million) <p>Funds will be used to:</p> <ul style="list-style-type: none"> • Train primary and preprimary teachers, principals, and supervisors • Supply textbooks, didactic materials, and library books • Encourage bilingual education • Finance external evaluations of student academic achievements • Improve schools in poor rural areas and appoint additional teachers 	<ul style="list-style-type: none"> • 30,000 trained teachers, principals, and supervisors • 4.3 million new textbooks and 20,000 library books, 8,500 poor rural students with didactic materials each year • 60% of indigenous primary students receive bilingual education • 8 rounds of math and Spanish tests applied to 20% of primary students • 290 expanded or rehabilitated and furnished rural schools; 1,200 new rural preschool programs 	<ul style="list-style-type: none"> • Strengthening the institutional capacity of the Ministry of Education may take longer to achieve than anticipated • Inadequate provision of counterpart funds by the government 	<ul style="list-style-type: none"> • 10–20% increase in students' test scores • 10% reduction in repetition and dropout rates • 5–10% increase in future earnings of primary school graduates from poor families
Strengthen capacity of the Ministry of Education to deliver basic education services	<ul style="list-style-type: none"> • IDA, bilateral, and government funds will finance technical assistance, equipment, office improvements, staff training, monitoring and evaluation efforts, and teacher performance incentives 	<ul style="list-style-type: none"> • Reorganize Ministry of Education • Decentralize services to 18 departments • Municipalities maintain schools 		<ul style="list-style-type: none"> • 30% reduction in administrative costs • 40% reduction in central staff • Budget deficits avoided • Lower teacher absenteeism • Greater efficiency in the use of public resources for basic education services, as measured by lower overhead costs (by X%)

Task manager: Anna Sant'Anna.

Table 2. Summary of objectives and key performance indicators, Indonesia Rural Electrification Project (Staff Appraisal Report 12920-IND, February 3, 1995)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
Expand coverage and supply of electricity to rural areas	<ul style="list-style-type: none"> • IBRD loan (\$398 million) • Government/PLN funds (\$442.8 million) • Ministry of Cooperatives (\$0.5 million) <p>Funds will be used to procure equipment, works, consultants, and training and technical assistance for capacity building</p>	<p>Expand electricity network:</p> <ul style="list-style-type: none"> • 28,000 kmc of MV lines • 35,000 kmc of LV lines • 1.3 million poles • 833 MVA distribution transformers 	<p>None. Well within PLN's implementation and financial capacity customers</p>	<ul style="list-style-type: none"> • Supply electricity to 7,000 additional rural villages covering 2.1 million new customers • Meet electricity consumption targets of 35–45 kilowatt hours a month, depending on region • Increase penetration of televisions, radios, and other appliances • Increase rural household electrification from 32% to more than 40% by 1998
Establish incentives for private sector and local cooperatives to provide a larger share of rural electricity distribution and renewable energy generation for rural power supply		<ul style="list-style-type: none"> • Publish small power purchase tariff and standard power purchase contract for sale of electricity by private generators to PLN • Establish bulk supply tariff for sale of bulk electricity 	<ul style="list-style-type: none"> • PLN may be slow to enter into power purchase contracts • Delayed implementation of the policy and regulatory framework to oversee retail pricing and service aspects of private distributors 	<ul style="list-style-type: none"> • Strengthen the enabling environment for private sector and cooperatives to generate, distribute, and sell wholesale and retail-level power from renewable energy sources. • Increase megawatts and megawatt hours of non-PLN generation provided by renewable energy from 0 to 75 megawatts and 300 megawatt hours a year by 1998 • Increase the number of cooperatives engaged in electricity distribution who buy bulk power from PLN • Reduce power generation requirements from high-cost diesel plants to 75 megawatts and 200 megawatt hours by 1998

Table continues on the next page.

Table 2 (continued)

OBJECTIVES	INPUT (Resources provided for project activities)	OUTPUT (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOME/IMPACT (of project activities)
<p>Advance the efforts initiated under the First Rural Electrification Project to place the rural electrification program on an efficient and sustainable footing by:</p>	<ul style="list-style-type: none"> Enhancing the efficiency of rural electricity delivery by increasing and strengthening local participation 	<ul style="list-style-type: none"> Expand PLN training program to enable village-level technicians to undertake selected distribution and customer service functions (training target numbers to be determined) 	<ul style="list-style-type: none"> Training program not keeping pace with targets 	<ul style="list-style-type: none"> Increase from 2,000 to 4,000 the number of village cooperatives engaged in distribution-related operations and maintenance and customer service functions, increasing coverage from 7 million to 12 million rural customers Enhance PLN's ability to extend its customer base without proportionately increasing its organizational size Improve staff productivity index from already high 250 customers per employee
<ul style="list-style-type: none"> Maximizing the economic benefits of rural electricity by promoting its productive uses 		<ul style="list-style-type: none"> Convert 30,000 small rural businesses to electricity for production purposes 	<ul style="list-style-type: none"> Weak management by PLN 	<ul style="list-style-type: none"> Target 36 million kilowatts per year increase in electricity consumption by rural businesses Create the potential for 15,000 new jobs in rural businesses and increased human capital development and participation benefits to village cooperatives
<p>Initiate pilot programs to test new designs and construction management methods with the potential for further lowering the costs of rural electricity extension and intensification</p>		<p>Complete four pilot projects:</p> <ul style="list-style-type: none"> Single Wire Earth Return systems Reinforced concrete pole Low-cost substations Contract administration company 	<ul style="list-style-type: none"> PLN delays in timely completion of pilot projects Improper implementation limits value of operational experience 	<ul style="list-style-type: none"> Generate data on adaptability of technical options and construction management techniques and savings potential in rural electricity delivery 10-25% reduction in costs, depending on program 15-20% reduction in costs of rural electricity delivery in next stage of government's rural electricity program

Task manager: Arun Sanghvi.

Table 3. Summary of objectives and key performance indicators, Indonesia: Second Agricultural Research Management Project (SAR 13933-IND, April 21, 1995)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on ..)	OUTCOMES AND IMPACTS (of project activities)
Establish and operate eight agricultural technology assessment institutes in 12 provinces to serve as regional centers for farming systems research and technology transfer	<ul style="list-style-type: none"> • IBRD loan (\$63 million) • Government counterpart funds (\$38.8 million) <p>Funds will finance civil works, equipment, books, training, research, and technical assistance</p>	<p>Eight agricultural technology assessment institutes with new and rehabilitated facilities and equipment offering:</p> <ul style="list-style-type: none"> • Databases on AEZ characteristics and regional information • Support services for farmers and extension workers <p>The eight institutes will create five-year research and development master plans and receive staff training and technical assistance under this component</p>	<ul style="list-style-type: none"> • Sustainability of local counterpart funding • Relocation of AARD staff to regional locations • Strengthening of extension and support services at local levels 	<ul style="list-style-type: none"> • 25% increase in adoption of location-specific technologies and best practices tested by agricultural institutes • Decentralize agricultural research and development system, focused on local needs, in place within five years • 30% increase in number of on-farm trials, demonstrations, and technology transfer activities involving agricultural institutes' clients • Train 75% of agricultural institutes' staff in research and extension methods, technical fields, and farming systems • Increase attention to social and gender issues in research and development planning, project design and implementation, and monitoring and evaluation • Ensure that a more responsive and decentralized research and development system is in place within five years • 10% increase in productivity of major farming systems • Improve dissemination of information and new technology to farmers and users
Reform research and development management at the regional level to ensure relevance of research and development to users and to improve research quality and effectiveness		<ul style="list-style-type: none"> • Introduce standard research and development management procedures tested by the agricultural institutes • Develop databases on AEZ characteristics in nine additional agricultural institutes • Set up information and accounting systems in 17 agricultural institutes • Create five-year research and development master plans for nine additional agricultural institutes • Establish three pilot soil labs for farmers • Provide staff training and technical assistance on research and development management for nine additional agricultural institutes, the AARD Secretariat, and research institutes 	<ul style="list-style-type: none"> • Increased commitment of local governments to support decentralized research and development 	<ul style="list-style-type: none"> • Adopt standard research and development management procedures for planning, priority setting, monitoring and evaluation, finance, and administration • 20% increase in use of databases by AARD, agricultural institutes, local governments, and universities for national and local planning and policymaking • Implement research and development master plans and annual plans and projects in 17 agricultural institutes • Increase technology transfer support for farmers, extension workers, and clients by the agricultural institutes and their collaborators • Increase AARD staff (about 70% in agricultural institutes and project implementation units) trained in research and development tools and practices

Table continues on the next page.

Table 3 (continued)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
Fund research in priority areas at national research institutes to support regional research and development programs		<ul style="list-style-type: none"> • 25% increase in research outputs from projects on priority areas (livestock, fisheries, horticulture, tree crops) and priority disciplines (biotechnology, agribusiness, marketing, sociology) • Rehabilitate specialized laboratories in selected national research institutes • Train scientists and provide technical support in priority areas and disciplines 	<ul style="list-style-type: none"> • Limited government counterpart funds for priority areas and disciplines 	<ul style="list-style-type: none"> • Manage institutes and staff better • Increase government allocation for agricultural research and development (to 1% of agricultural GDP) • 5% increase in government allocation for agricultural research and development; 10% increase in funds for priority areas and disciplines • 25% increase in number of technologies generated by national research institutes for on-farm testing and demonstration by agricultural institutes • Rehabilitate specialized laboratories in national research institutes to support priority areas and disciplines • 10% increase in number of trained scientists (postgraduate) in national research institutes working on priority areas and disciplines • Generate high-quality research in national research institutes and agricultural institutes • Secure increased and sustained funding for priority research areas and disciplines
Improve access to externally generated technologies and strengthen collaboration with Asia-Pacific and international centers, the private sector, and universities	<ul style="list-style-type: none"> • Collaborating institutions' counterpart funds 	<ul style="list-style-type: none"> • Improve technologies and new information from joint projects under the University Grant Program • Introduce new technologies, management tools, and standard methods from joint projects with Asia-Pacific and international centers, NARS, universities, and the private sector • Train staff and joint papers from the Scientific Exchange Program 	<ul style="list-style-type: none"> • Increased language capacity of AARD staff • Increased commitment of external groups to collaborate and fund joint activities 	<ul style="list-style-type: none"> • 30% increase in number of collaborative projects and activities with international and Asia-Pacific research centers, local universities, and the private sector • Increase exposure of Indonesian scientists and managers to international and regional forums and 20% increase in number of scientific papers in referred journals • 25% increase in scientists, managers, and agricultural institute staff trained outside Indonesia • Increase exposure of Indonesian scientists and managers to global research system • Foster collaboration among NARS and between NARS and IARCs

Task manager: Dely Gapasin.

**Table 4. Summary of objectives and key performance indicators,
Lithuania Siauliai Environment Project (Staff Appraisal Report 14981-LT, November 9, 1995)**

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
Reduce pollutant loads from the Siauliai area into the Upper Lielupe River Basin	<ul style="list-style-type: none"> • IBRD loan (\$6.2 million) • Bilateral grants (\$8.54 million) • Government funds (\$7.6 million) • Municipality funds (\$0.4 million) <p>Funds will be used to procure equipment, works, consultants, and technical assistance (training)</p>	<ul style="list-style-type: none"> • Rehabilitate sewer network • Rehabilitate wastewater treatment plant • Construct new wastewater treatment plant • Implement pollution control measures at pig farms • Implement pollution control measures for agricultural runoff 	<ul style="list-style-type: none"> • Problems with securing local funding 	<ul style="list-style-type: none"> • Increase treated wastewater from 40,000 cubic meters a day to 50,000 cubic meters a day • Reduce nitrogen, phosphorus, and other pollution at the treatment plants' outlets, at the mouth of the Lielupe River, and at the wastewater treatment plant, from X tons a year to Y tons a year • Reduce pollution levels at selected points downstream from agricultural pilot sites and pig farms • Lower (by X%) health care costs • Increase (by X%) tourism revenues • Increase international political goodwill
Improve quality, reliability, and cost efficiency of water supply and wastewater services in Siauliai		<ul style="list-style-type: none"> • Rehabilitate equipment • Provide new equipment • Restructure water utility • Train people 	<ul style="list-style-type: none"> • Ability to adjust tariffs • Revenue collection difficulties • Political difficulties with organizational restructuring (staff reduction) 	<ul style="list-style-type: none"> • Improve drinking water quality (lower iron content and softer potable water) • Ensure fewer breaks and trouble calls on the water supply and distribution system and the wastewater collection and conveyance system • Provide an adequate operating ratio (less than 85%) and adequate working ratio (less than 70%) for the water utility
Improve local and regional environmental quality monitoring and enforcement system in the Upper Lielupe River Basin		<ul style="list-style-type: none"> • Provide monitoring and laboratory equipment • Provide other equipment • Train people • Develop management plans to reduce industrial pollution and sludge • Develop emergency management plan 	<ul style="list-style-type: none"> • Potential coordination difficulties between concerned parties 	<ul style="list-style-type: none"> • Ensure regular and accurate monitoring of water quality • Ensure regular enforcement visits at pollution sources

Task manager: Sari Soderstrom.

Table 5. Summary of objectives and key performance indicators, Peru Rural Roads Rehabilitation and Maintenance Project (Staff Appraisal Report 14939-PE, November 6, 1995)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
<p>Reduce transport costs and increase reliability of vehicular access in rural areas to expand markets for agricultural and nonfarm products by:</p> <ul style="list-style-type: none"> • Integrating inaccessible zones with regional economic centers 	<ul style="list-style-type: none"> • IBRD loan (\$90 million) • Inter-American Development Bank loan (\$90 million) • Government funds (\$70.2 million) <p>Funds will be used to procure technical assistance, equipment, and works</p>	<ul style="list-style-type: none"> • Bring 5,000 km of rural roads up to adequate standards for traffic • Bring 2,500 km of connecting roads up to good condition • Maintain 7,500 km of roads routinely according to guidelines developed under the project 	<ul style="list-style-type: none"> • Favorable macroeconomic conditions and terms of trade • Favorable natural conditions in project area • Security situation does not prevent execution of works • Local construction industry develops capacity to undertake large volume of works 	<ul style="list-style-type: none"> • 80% of communities in program areas linked by a reliable and affordable public transportation system • 30% lower freight tariffs for transport of agricultural output • 30% lower passenger tariffs for transport in rural areas • 30% increase in commercial traffic (buses, pickups, and trucks) within three years of completion of road improvements • Alleviate rural poverty in the 12 poorest departments (X% change in poverty measure)
<ul style="list-style-type: none"> • Improving transport conditions in rural villages 		<ul style="list-style-type: none"> • Improve 220 km of streets in at least 300 villages • 20% of integrated road projects include a non-motorized transport component 	<ul style="list-style-type: none"> • Communities willing to participate and commit resources • Successful coordination with other programs to enhance access to intermediate means of transport 	<ul style="list-style-type: none"> • Reduce dust pollution and increased traffic and pedestrian safety in 200 villages • Improve traffic conditions and 25 villages develop capacity to manage the unclassified networks of tracks • Raise living standards for 1.5 million rural residents through increased (by Y%) infrastructure access
<p>Increase employment through rehabilitation and maintenance of rural roads</p>		<ul style="list-style-type: none"> • Contract out to local communities and contractors at least \$250 million invested in works 	<ul style="list-style-type: none"> • Continued government support for poverty eradication policy and the project 	<ul style="list-style-type: none"> • Generate 35,000 one-year equivalent nonskilled seasonal jobs • Generate more than 4,000 nonskilled permanent jobs

Table continues on the next page.

Table 5 (continued)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
<p>Increase institutional capacity at the local level and increase capacity for small and medium-size enterprises to manage and carry out sustainable maintenance and upgrading of roads</p>		<p>Provide technical assistance for:</p> <ul style="list-style-type: none"> • Planning and management of rural roads within MTC, PERT-PCR, and local governments • Developing microenterprises and small and medium-size enterprises for road maintenance • Developing the local construction industry. <p>Studies on:</p> <ul style="list-style-type: none"> • Local Road Administration Practices • Rural Roads Funding 	<ul style="list-style-type: none"> • Government commitment to empowering municipalities • Municipalities' participation in the technical assistance program • System of intergovernmental transfers and local revenue sources in place as a result of the decentralization agenda 	<ul style="list-style-type: none"> • Establish rural roads unit within MTC to plan and monitor rural road investment and transportation performance • Revise functional and jurisdictional classification of roads and inventory of all public roads • Streamline local government procurement procedures in accordance with the action plan developed under the Local Roads Administration Practices study • Implement mechanism to secure funds for rural maintenance agreed between central and local governments in accordance with the action plan developed under the Rural Roads Funding study • Encourage more than 300 local contractors and consultants to register with PERT-PCR and participate in project activities • Ensure that 100 microenterprises and small and medium-size participate in routine maintenance • Ensure that 60 (of 117) provincial municipalities adopt institutional programs designed under the project

Task manager: José Luis Irigoyen.

Table 6. Summary of objectives and key performance indicators, The Philippines Women's Health and Safe Motherhood Project (Staff Appraisal Report 13566-PH, January 27, 1995)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
<p>Improve health status of low-income women of reproductive age by increasing substantially their use of effective and sustainable health care services. Specific development objectives:</p>	<ul style="list-style-type: none"> • IBRD loan (\$18 million) • ABB loan (\$54 million) • KfVW cofinancing (\$14.24 million) • EC cofinancing (\$13 million) • AIDAB cofinancing (\$10.55 million) • LGU counterpart funds (\$26.66 million) 			<ul style="list-style-type: none"> • Increase proportion of women receiving prenatal and postnatal care, family planning, and RTI/STD and cervical cancer management from X% to Y% • Lower from 60% to X% the share of lower-income women not attended by a trained physician • Increase from X% to Y% the share of pregnant and lactating women completing micronutrient supplementation regimes • 25% drop in share of women contracting puerperal infections (among the total number of diagnosed pregnancies) • 10% drop in share of low birthweight newborns • Reduce maternal mortality rate from 208 per 100,000 live births to X per 100,000 by 2005 • Lower fertility rate from 4.3% to X% by 2005
<ul style="list-style-type: none"> • Improving quality, range, and access to women's health services 	<p>Micronutrients, food fortification, immunizations, delivery kits, drugs and supplies, health facilities renovation, technical assistance, and medical and laboratory equipment to:</p> <ul style="list-style-type: none"> • Strengthen maternal and prenatal care facilities and services • Strengthen family planning services • Implement RTI/STD prevention management program • Design and implement cervical cancer screening program 	<ul style="list-style-type: none"> • Increase from X% to Y% the share of women with access to maternal and prenatal care, family planning, RTI/STD and cervical cancer care, and counseling • Ensure that X% of the population resides within Y km of a health facility • Ensure that X% of women who sought care through a health facility were satisfied with the services 	<ul style="list-style-type: none"> • LGUs have the managerial and technical capacity to implement the project • Adequate cash flow to support project activities • Most LGUs decide to participate in the project • Sufficient and effective coordination by the various donors is developed and maintained 	<ul style="list-style-type: none"> • Ensure that 90% of women referred with obstetric complications are managed correctly • 25% increase in women referred and appropriately managed for RTIs in the ten provinces • 20% increase in women detected and managed for cervical cancer in the 15 provinces

Table continues on the next page.

Table 6 (continued)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
<ul style="list-style-type: none"> • Strengthening LGU capacity to manage health services and DOH capacity to provide technical, financial, and logistical support 	<p>Technical assistance, workshops and training, broadcast time, office and other equipment, travel, salaries honoraria, incremental operating costs, supplies, computer hardware and software, warehouse construction and renovation, vehicles, logistics, and material production publication, and distribution contracts to:</p> <ul style="list-style-type: none"> • Design and implement in-service training program for public health care workers • Establish and operate project management office • Strengthen national public health and logistics system 	<ul style="list-style-type: none"> • Increase to X% on-the-job competency levels of staff trained in clinical, diagnostic, counseling, interpersonal, communication, history-taking, and referral practices • Increase to X% the timeliness and accuracy of procurement and distribution of drugs, reagents, and other medical supplies 	<ul style="list-style-type: none"> • Skills learned in training programs by midwives and barangay health workers are used effectively as community outreach tools • Midwives and barangay health workers are not too overburdened with additional patients to deliver quality services • Local contractors and consulting firms have the technical expertise to conduct studies 	<ul style="list-style-type: none"> • Ensure that less than 25% of health facilities report stock-outs of essential drugs • Reduce cost of logistics to less than 8% of value of commodities
<ul style="list-style-type: none"> • Increasing local and NGO involvement in women's health programs 	<ul style="list-style-type: none"> • Designed and implemented household-level community outreach programs • Designed and implemented integrated information, education, and communication strategy • Designed and implemented community partnerships program 	<ul style="list-style-type: none"> • Form X community partnerships to empower women and their communities to improve their health • Province-level LGUs conduct X training programs • Fund X proposals submitted by NGO partnerships at community level 		<ul style="list-style-type: none"> • Ensure that at least 80% of those surveyed are aware of one preventive intervention for RTIs, two symptoms of RTIs, and one complication due to RTI. • Ensure that at least 90% of women surveyed know about antenatal TT injections and iron folate supplements
<ul style="list-style-type: none"> • Improving knowledge base for health policy formulation 	<ul style="list-style-type: none"> • Consultants, studies, monitoring, and evaluation 	<ul style="list-style-type: none"> • Complete X studies on the cost-effectiveness of service delivery options • Improve health policy framework leading to increased cost-effectiveness of various options to deliver health services to women • Establish protocols for better detection and diagnosis of RTIs and early cervical cancer 		

Task managers: Stanley Scheyer, Maria Dalupan, and Rama Lakshminarayanan.

Table 7. Summary of objectives and key performance indicators, Venezuela Agricultural Extension Project (Staff Appraisal Report 13591-VE, March 7, 1995)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
<p>Help poor farmers raise their productivity and incomes</p> <p>Help small farmers improve the environmental sustainability of their agricultural activities</p>	<ul style="list-style-type: none"> • IBRD loan (\$39 million) • Government funds (\$21 million) • State government funds (\$11 million) • Municipal government funds (\$6 million) • Farmers funds (\$2 million) <p>Funds will be used to train agricultural extensionists, establish new extension offices, and provide extension visits to farmers</p>	<ul style="list-style-type: none"> • Establish extension offices in each state and municipality (18 states and 180 municipalities) • Provide 50 training programs for extensionists each year • Provide four extension visits to each farm each year, covering 90,000 farmers • Fund at least two annual visits by subject matter specialists to every municipality's farms and extension offices • Sponsor one field day each year in every state • Sponsor two field trials each year in every municipality • Establish farmers associations in every municipality • Coordinate monthly meetings of extensionists and subject matter specialists in each state 	<ul style="list-style-type: none"> • Availability of counterpart funding • Sufficient administrative coordination in establishing a new nationwide program 	<ul style="list-style-type: none"> • Farmers learn about and adopt new technologies (measure: X beneficiaries adopt at least one technology recommended by the extension service) • Extensionists learn new technologies from universities and specialists (measure: X training events and field days each year, with Y extensionists participating) • Applied research conducted to address farmer's expressed needs (measure: X field trials conducted by specialists together with extensionists) • Higher incomes for 90,000 beneficiaries (measures: X% of participating farmers have yield increases over previous period, average yield increase, Y% of participating farmers increase their net income over previous period) • Economic growth in rural communities (measure: average net income change over previous period of participating farmers) • Less environmental damage (soil degradation, erosion, runoff) caused by poor farmers (measure: X plots on participating farms with environmental improvement over previous period)

Task manager: David Nielson.

**Table 8. Summary of objectives and key performance indicators,
Chad: Structural Adjustment Credit (President's Report P-6785-CD)**

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
Restore public sector capacity and improve public sector finances				
Civil service reform	<ul style="list-style-type: none"> • \$30 million • Capacity-building project (\$9.5 million) 	<ul style="list-style-type: none"> • Complete a civil service census • Abolish automatic wage increases • Prepare an organizational chart for civil service 	<ul style="list-style-type: none"> • No renewal in political unrest • Sufficient institutional capacity • New administration follows through on program 	<ul style="list-style-type: none"> • Reduce civil service wage bill from 5.8% of GDP in 1995 to 5.1% in 1998
Public finance rehabilitation		<ul style="list-style-type: none"> • Introduce single taxpayer code • Reform special enterprise regimes in line with regional economic agreements • Renegotiate customs treatment for private firms and public enterprises • Centralize collection of all international trade taxes • Establish exoneration quotas for imports by diplomats 		<ul style="list-style-type: none"> • Increase revenue from 9% of GDP in 1995 to 11.5% in 1998
Increase development and poverty alleviation impact of public spending				
Demobilization		<ul style="list-style-type: none"> • Reduce army size, with assistance for resettlement 		<ul style="list-style-type: none"> • Cut army from 47,000 to 21,000 soldiers
Public expenditure management		<ul style="list-style-type: none"> • Abolish off-budget operations • Eliminate arrears to domestic suppliers 		
Development of public expenditure program for 1996 and capital expenditure program for 1996-98		<ul style="list-style-type: none"> • Reach agreement with IDA on 1996 budget and 1996-98 public investment program 		<p>In 1996 budget:</p> <ul style="list-style-type: none"> • Limit wages and salaries to 5.7% of GDP • Limit goods and services to 2.6% of GDP • Limit overall current expenditures to less than 13.5% of GDP • Limit capital expenditure to less than 1.4% of GDP

Table continues on the next page.

Table 8 (continued)

OBJECTIVES	INPUTS {Resources provided for project activities}	OUTPUTS {Goods and services produced by the project}	RISKS AND CRITICAL ASSUMPTIONS {The outcome is dependent on...}	OUTCOMES AND IMPACTS {of project activities}
Improved resource allocation to social sectors		<ul style="list-style-type: none"> • Increase resources for primary health, primary education, welfare of women and children, and road maintenance 		<p>In 1996 budget:</p> <ul style="list-style-type: none"> • 26% increase in allocation to education, health, and women and social affairs over 1995 level (20% real increase) • 43% increase in road maintenance, from CFAF 2.8 billion in 1995 to CFAF 4.0 billion in 1996
Create favorable environment for private sector growth				
Strengthened judicial and regulatory environment		<ul style="list-style-type: none"> • Simplify procedures for licensing businesses • Amend Articles 116 and 142 of labor code • Simplify investment code • Amend the business code, including company and bankruptcy laws • Ratify OHADA 		<ul style="list-style-type: none"> • Increase private investment from 1.4% of GDP in 1995 to 4.5% in 1998 [excluding impact of Doba oil]
Financial system restructuring		<ul style="list-style-type: none"> • Sell public shares of BTCO and BDT • Sell Meridien's share in BMBT • Reduce public sector membership on the board of CNPS • Prepare action plan to settle government's debt to CNPS and CNRT 		
State enterprise divestiture		<ul style="list-style-type: none"> • Liquidate SONACOT, BICIT, Caisse Sucre, and FIP • Prepare Hotel du Chari, BIEP, INT, and ONHPV for privatization • Offer SONAPA, SOTEC, BDT, BTCO, and BMBT for privatization • Initiate divestiture strategy for STEE ONPT, TIT, COTONCHAD, and SONASUT 		
Cotton sector reform		<ul style="list-style-type: none"> • Launch COTONCHAD human resource development strategy • Improve producer pricing • Adopt two-part cotton producer pricing mechanism 		<ul style="list-style-type: none"> • Increase producer price for first-grade cotton from CFAF 120 per kilogram to CFAF 140 per kilogram • 10% annual increase in cotton exports between 1995 and 1998

Task managers: Amadou Cisse and Emmanuel Akpa.

**Table 9. Summary of objectives and key performance indicators,
Morocco: Financial Markets Development Loan (President's Report P-6633-MOR)**

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
Treasury financing				
Enable Treasury to finance itself at market terms	<ul style="list-style-type: none"> • IBRD loan (\$250 million) 	<ul style="list-style-type: none"> • Eliminate mandatory Treasury bond to sight deposits ratio 	<ul style="list-style-type: none"> • Nonagricultural GDP grows from 2.7% in 1995 to 3.2% in 1996, to 3.6% in 1997 	<ul style="list-style-type: none"> • Increase ratio of Treasury bond auctions to total Treasury domestic debt from 25% in 1995 to 30% in 1996, to 35% in 1997
Increase liquidity of public securities and strengthen secondary markets for Treasury bonds	<ul style="list-style-type: none"> • Technical assistance • Debt management—\$50,000 (France) 	<ul style="list-style-type: none"> • Adopt law on negotiable securities • Issue Central Bank circulars on Treasury bond tenders 	<ul style="list-style-type: none"> • Ratio of debt outstanding to GDP falls from 221% in 1995 to 200% in 1996, to 182% in 1997 	
Eliminate remaining tax bias	<ul style="list-style-type: none"> • Accounting—\$75,000 (France) 	<ul style="list-style-type: none"> • Eliminate fiscal incentives on Treasury bonds 	<ul style="list-style-type: none"> • Current account deficit/GDP ratio falls from 3.5% in 1995 to 2.9% in 1996, to 2.8% in 1997 	
Strengthen public debt management system		<ul style="list-style-type: none"> • Complete training program 	<ul style="list-style-type: none"> • Budget deficit/GDP ratio falls from 3.5% in 1995 to 3.0% in 1996, to 2.5% in 1997 • Fixed capital formation/GDP ratio increases from 21.2% in 1995 to 22.0 in 1996, to 22.8 in 1997 • No deterioration in banks' financial condition 	
Indirect monetary control				
Implement indirect monetary control policy		<ul style="list-style-type: none"> • Central Bank sets base rates • Issue Central Bank circular establishing terms and conditions of its interventions in monetary market • Calculate reserve requirement on a daily basis 		<ul style="list-style-type: none"> • Limit ratio of Central Bank advance rate to interbank rate maximum spread to 2% through 1997
Liberalize interest rates		<ul style="list-style-type: none"> • Eliminate ceiling on lending rates 		
Capital market development				
Diversify financing sources for private firms, strengthen accounting framework, and deepen capital markets	<ul style="list-style-type: none"> • Technical assistance for a central depository and delivery and payments system—\$1 million (France) 	<ul style="list-style-type: none"> • Issue decrees on stock exchange • Implement accounting framework • Present draft law on corporations to House of Representatives • Approve rules governing national council for accounting • Present draft law on preparation, publication, and certification of consolidated financial accounts • Eliminate government guarantees on domestic bond issues by public enterprises • Develop accounting rules for insurance companies 		<ul style="list-style-type: none"> • Increase corporate bond issues from 0 in 1995 to DH 2 billion in 1996, to DH 4 billion in 1997 • Increase ratio of stock market capitalization to GDP from 17% in 1995 to 19% in 1996, to 23% in 1997

Table continues on the next page.

Table 9 (continued)

OBJECTIVES	INPUTS (Resources provided for project activities)	OUTPUTS (Goods and services produced by the project)	RISKS AND CRITICAL ASSUMPTIONS (The outcome is dependent on...)	OUTCOMES AND IMPACTS (of project activities)
Increase institutional savings	<ul style="list-style-type: none"> • Technical assistance for contractual savings—\$600,000 (France) 	<ul style="list-style-type: none"> • Complete study of and action plan on potential role of institutional investors 		Same as above (increase corporate bond issues, stock market capitalization)
Encourage investors to trade securities on-floor and increase transparency of stock exchange operations	<ul style="list-style-type: none"> • Technical assistance on stock exchange operations, upgrading, and trading (CIDA) 	<ul style="list-style-type: none"> • Define trading fees 		
Strengthen securities commission and stock exchange		<ul style="list-style-type: none"> • Implement action plan to strengthen securities commission and stock exchange 		
Banking system				
Accelerate privatization program		<ul style="list-style-type: none"> • Sell state's shares in BCP, BNDE, and CIH 		
Establish foreign exchange market		<ul style="list-style-type: none"> • Announce creation of forex market • Issue circular establishing forex market and modalities of operations • Issue accounting standards for foreign currency operations by banks • Eliminate initial minimum (DH 100,000) required to open nonresident Moroccan accounts in foreign currencies • Increase foreign currency limits of exporters of goods and services from 5% and 10% to 20% 		
Strengthen bank supervision		<ul style="list-style-type: none"> • Develop off-site and on-site supervision • Submit regular reports prepared by independent external auditors certified by the Central Bank 		

Task manager: Emmanuel Forestier.

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