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Indicators for Monitoring Poverty Reduction

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FOREWORD

This paper is one of a series of studies being undertaken as part of the follow-up to the report, *Portfolio Management: Next Steps -- A Program of Actions* (July 1993), which sought to put the recommendations of the Portfolio Management Task Force (PMTF) Report (October 1992) into practice in the World Bank's operations. To assist in this process, the Sector Departments in the Central Vice Presidencies and the Development Economics Department (DEC) were charged with developing a "menu" of indicators to assess a project's success or failure during its implementation. This paper is part of that exercise. It discusses the indicators that are relevant in monitoring the performance of the Bank's lending for poverty reduction. The main aim of the paper is to provide guidance on the use of indicators. It may also be of interest to those engaged in producing poverty data through household surveys and other means. Unlike the other studies, this paper is cross-sectoral in scope since poverty reduction operations may cover one or more sectors.

This paper analyzes experience in designing performance indicators in the Bank's targeted poverty projects and poverty-oriented SALs/SECALs, and sets out key considerations that should guide the choice of indicators for monitoring the poverty reduction performance of the Bank's lending. The paper is primarily addressed to Bank staff and policymakers involved in the indicators exercise, and those with an interest in monitoring and evaluation.

It is hoped that the paper will contribute to greater attention being paid to the design and use of appropriate indicators to monitor poverty reduction.

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ABSTRACT

In recent years, the World Bank has stressed that poverty reduction is its overarching objective. This paper discusses the indicators that are relevant in monitoring the performance of the Bank's lending for poverty reduction. For every project, three classes of indicators can be distinguished -- input, process, and impact. An indicator is classified depending on whether it reflects the means, the process, or the end in achieving the overall development objective of the project. Good monitoring requires a balanced use of all three types of indicators. The indicators should yield information that may be interpreted in a "with" versus "without" manner. That is, it should be possible to determine what these indicators would have been if the project had not taken place. Project analysis has to rely on "before" versus "after" data, control groups, and an understanding of exogenous factors that may influence the chosen indicators. In the case of adjustment lending, modelling may be used to construct counterfactual analysis.

There are very few indicators of poverty *per se*. Poverty indices are among the few measures of poverty per se. Poverty indices refer to the three measures of income poverty -- the headcount index, the poverty gap index, and the squared poverty gap (or severity) index. Other poverty indicators fall into two categories. First, there are poverty-related indicators -- variables of particular relevance to the well-being of the poor such as the rural terms of trade or the unskilled wage index. Whether a particular indicator can or cannot be interpreted as poverty-related varies depending on country-specific circumstances. Second, existing indicators may be disaggregated in such a way as to focus on the poor; the usual disaggregation is by gender and/or region (or rural-urban), but where possible, it can also be by income group.

This paper reviewed 178 Staff Appraisal Reports (SARs) for IDA-financed targeted poverty projects and 32 President's Reports for IDA-financed poverty-oriented SALs and SECALs approved during fiscal 1988-93. In the period fiscal 1988-93, one third of SARs did not mention the use of indicators beyond routine project management. Of the remaining two-thirds that aimed at monitoring impact, roughly half explicitly listed impact indicators. There is an obvious difference between fiscal 1992-93 and the earlier years (fiscal 1988-91), with the percentage of targeted poverty projects listing only input indicators at the most being on average less than half in the later period than in the earlier one; by fiscal 1992-93, over 80 percent of SARs had some discussion of indicators. Explicit mention of impact indicators in the SAR has increased over the period fiscal 1990-93 compared to the earlier period. Another general finding from the survey was the lack of clarity in the SARs in distinguishing among objectives, project activities, targets, and benefits in the SARs. This lack of clarity is not a mere semantic issue, but has genuine operational implications. Identifying useful indicators is predicated upon a clear statement of development objectives and the identification of clearly defined benefits, but this is not done in all SARs. Of the 32 poverty-oriented SALs/SECALs, the President's Reports for 11 loans included the use of indicators to track poverty issues. It may be noted that, while only some poverty-oriented SALs/SECALs included indicators or targets for performance monitoring, all adjustment loans specified macroeconomic and/or sector performance indicators and targets.

If indicators are designed at the same time as the project is designed, it is more likely that beneficiaries, borrowers, project managers, and Bank staff will feel ownership of the project's outcomes. Bank staff should not use indicators that are not considered relevant by project management and beneficiaries. Before any new data collection exercise is begun, *all* relevant existing data sources should be mined. The use of existing data sources and channels of data collection is important not only so as not to overburden the agency that is implementing the project with data responsibilities but also because

the capacity and skills for data collection and analysis may not be available at the project level. The implementing agency should form institutional links with statistical authorities to ensure that relevant data are obtained in a timely and appropriate manner.

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EXECUTIVE SUMMARY

Purpose of the paper. In recent years, the World Bank has stressed that poverty reduction is its overarching objective. This paper discusses the indicators that are relevant in monitoring the performance of the Bank's lending for poverty reduction. Its main aim is to provide guidance on the use of indicators. The paper may also be on interest to those producing poverty data through household surveys and other means. Performance indicators can facilitate corrections in project design and implementation. They can expose problems and may shed light on some of the causes of the problems. However, they are not a substitute for more in-depth evaluative work. Indicators are precisely that -- "indicative" -- and constitute only one part of the project management and monitoring process.

Motivation for the paper. Two recent observations about the Bank's operations provide the basis for this study: (i) the emphasis on poverty reduction as the Bank's principal mandate and the implications of this for ensuring that Bank operations designed to address poverty directly are actually achieving that objective; and (ii) the belief that inadequate monitoring and supervision of projects is a major factor behind the deteriorating performance of the Bank's portfolio as indicated by the Portfolio Management Task Force (PMTF) Report (also referred to as the Wapenhans Report). This paper was also motivated by a related finding of the Wapenhans Report of a "worrying and growing" discrepancy between the generally favorable supervision ratings during the implementation of the project and the subsequent, less favorable evaluation ratings at the completion of the project. Accordingly, the Wapenhans Report underlined the need for monitoring the impact of the project during its operational phase.

Current guidelines on the use of indicators. The Bank's current Operational Directive, OD 13.05 of March 1989, requires that supervision reports present key performance indicators for each project and "display in tabular form quantitative measures of project performance in critical areas". The indicators are to be based on the Staff Appraisal Report, although our own analysis revealed that a large number of Staff Appraisal Reports (SARs) contain poorly articulated objectives and benefits and, hence, provide a weak basis for the assessment of project performance. The present OD does not, however, require that supervision ratings be based on performance on these key indicators.

Typology of indicators. For every project, three classes of indicators can be distinguished -- input, process, and impact. An indicator is classified depending on whether it reflects the means, the process, or the end in achieving the overall development objective of the project. Good monitoring requires a balanced use of all three types of indicators.

Interpreting indicators. The indicators should yield information that may be interpreted in a "with" versus "without" manner. That is, it should be possible to determine what these indicators would have been if the project had not taken place. Project analysis has to rely on "before" versus "after" data, control groups, and an understanding of exogenous factors that may influence the chosen indicators. In the case of adjustment lending, modelling may be used to construct counterfactual analysis.

Definitions. This paper adopts the following terminology. "Monitoring" refers to tracking input and process indicators as well as determining impact during project implementation either directly through impact indicators or indirectly through proxies. "Evaluation" is the assessment of the project's impact after the implementation is complete.

Proxies for impact. There may be cases in which impact is difficult or costly to measure or in which it is known that impact is closely related to process so that process indicators will suffice. For example, the contraceptive prevalence rate may be a fairly accurate proxy for the level of fertility so that there is little need to record actual fertility rates. This example makes a case for using "proxies" for impact, but it does not undermine the need for measuring impact. In other cases, process indicators may not be good proxies for impact. For example, enrollment rates can increase as a result of new schools being built, but the literacy rate may not necessarily improve unless the quality of the education provided improves.

Ownership. If indicators are designed at the same time as the project is designed, it is more likely that beneficiaries, borrowers, project managers, and Bank staff will feel ownership of the project's outcomes. The "menu" of indicators provided in this paper is "indicative". For any project, a range of indicators will be suitable, and indicator selection should be discussed with project beneficiaries and management. The indicators detailed in the Staff Appraisal Report (SAR) or identified at the start of the project, should be collected by (or at the direction of) project management, who will use them as a management tool. These data will then be available to (but not be collected by) Bank supervision missions, who will use them in their own project ratings. Bank staff should not use indicators that are not considered relevant by project management and beneficiaries.

Beneficiary inputs to indicators. Beneficiaries can be involved with indicators in three ways: (i) they can help to identify indicators; (ii) they can be respondents in beneficiary contact monitoring; and (iii) they can participate in a beneficiary assessment. Beneficiary input into the selection of indicators can be of assistance in defining not only appropriate indicators but also appropriate activities. Many "process" and "impact" indicators fall under the heading of "beneficiary contact monitoring" since measurement requires some form of contact with beneficiaries, although the form of this contact can vary. Beneficiary assessment is a subset of beneficiary contact monitoring in which the views of the beneficiaries are actively sought, and this can yield one class of impact indicators.

National or Sectoral indicators versus project indicators. The Wapenhans Report was concerned with measuring impact at the project level. Some argue that this misses the point that successful projects are of little use if the sector as a whole is performing badly. This paper emphasizes that the collection of the indicators at the sector or project level are not mutually exclusive; they are just measuring different things. Project indicators are an important part of "project" monitoring and supervision. Sectoral indicators are required for adjustment operations and may also be relevant for project monitoring.

Most indicators may be collected at either local or national level, although there are some indicators for which only national collection is appropriate, for example, the share in GDP or total government expenditures of public spending on basic services. Other indicators, notably the poverty indices, will also be too costly to collect at the project level on a routine basis. For the most part, "sector" and "project" indicators are not different indicators. The difference lies only in the area or coverage of data collection.

What is a poverty indicator? There are very few indicators of poverty *per se*. Poverty indices are among the few measures of poverty per se. Poverty indices refer to the three measures of income poverty -- the headcount index, the poverty gap index, and the squared poverty gap (or severity) index. Other poverty indicators fall into two categories. First, there are poverty-related indicators -- variables of particular relevance to the well-being of the poor such as the rural terms of trade or the unskilled wage index. Whether a particular indicator can or cannot be interpreted as poverty-related varies depending

on country-specific circumstances. Second, existing indicators may be disaggregated in such a way as to focus on the poor; the usual disaggregation is by gender and/or region (or rural-urban), but where possible, it can also be by income group (as in Indonesia where educational expenditure data have been calculated for each income decile).

Use of indicators in the Bank's poverty reduction investment operations and SALs/SECALs. This paper reviewed 178 IDA-financed targeted poverty projects approved in the period fiscal 1988-93.[1] These were analyzed to study the use of poverty-related indicators in project monitoring. The paper also examined 32 President's Reports for IDA-financed poverty-oriented SALs and SECALs approved during fiscal 1988-93.[2] In the period fiscal 1988-93, one third of SARs did not mention the use of indicators beyond routine project management. Of the remaining two-thirds that aimed at monitoring impact, roughly half explicitly listed impact indicators.

The treatment of indicators is strongest in the water supply and sanitation sector, the population, health and nutrition sector, and the transport sector. Reporting on or discussion of indicators is weakest in the urban sector, and is not strong in the education sector, and the agriculture and rural development sector.

There is an obvious difference between fiscal 1992-93 and the earlier years (fiscal 1988-91), with the percentage of targeted poverty projects listing only input indicators at the most being on average less than half in the later period than in the earlier one; by fiscal 1992-93, over 80 percent of SARs had some discussion of indicators. Explicit mention of impact indicators in the SAR has increased over the period fiscal 1990-93 compared to the earlier period. While, a view may be taken that indicators should not be predetermined during appraisal but should be developed by project management in consultation with beneficiaries once the project has begun, early identification of possible indicators at the inception of the project can help to ensure that the project is well-designed.

Another general finding from the survey was the lack of clarity in the SARs in distinguishing among objectives, project activities, targets, and benefits in the SARs. This lack of clarity is not a mere semantic issue, but has genuine operational implications. Identifying useful indicators is predicated upon a clear statement of development objectives and the identification of clearly defined benefits, but this is not done in all SARs.

Of the 32 poverty-oriented SALs/SECALs, the President's Reports for 11 loans included the use of indicators to track poverty issues. Four of the 11 loans included targets for some of the indicators, for example, for budgetary expenditures on education and health, especially in cases where expenditure reallocations were a condition of tranche release. It may be noted that, while only some poverty-oriented SALs/SECALs included indicators or targets for performance monitoring, all adjustment loans specified macroeconomic and/or sector performance indicators and targets.

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[1]Includes IDA-IBRD blend projects. Broadly, the term targeted poverty projects refers to those interventions that are aimed at directly reducing poverty. The pre-1992 and post-1992 figures for targeted poverty projects are not strictly comparable. From fiscal 1992 on, the concepts of the Program of Targeted Interventions (PTIs) and poverty-focused SALs/SECALs have been applied to Bank operations directly aimed at poverty reduction. For definitions of PTIs and poverty-focused SALs/SECALs see page 2. This paper uses the terms "targeted poverty projects" and "poverty-oriented SALs/SECALs" since it also covers the pre-1992 period during which time the terms Program of Targeted Interventions (PTIs) and poverty-focused SALs/SECALs had not been formally introduced in the Bank.

[2]Includes poverty-oriented SALs approved during fiscal 1988-91, and poverty-focused SALs and SECALs for projects approved during fiscal 1992-93. The pre-fiscal 1992 and post-fiscal 1992 figures are not strictly comparable.

Only a small number of targeted poverty projects and poverty-oriented SALs/SECALs included specific poverty indicators such as the poverty indices, rural terms of trade, or unskilled wages. Moreover, very few operations require the indicators to be reported in a disaggregated form, and this absence of disaggregation prevents the poor from being identified and measured. While the most common disaggregation is by gender, in some recent projects from fiscal 1993, explicit attention has been paid to monitoring poverty-related issues in poor areas or for specific groups in poverty. In a few cases, external factors influencing project outcomes such as the political situation and weather patterns were monitored.

Final words. The first requirement in selecting appropriate indicators is that the project's objectives and benefits should be clearly defined, although it is also conceivable that discussing the choice of indicators at an early stage of project preparation actually helps in defining and securing consensus on project objectives between the borrower and project management. The choice of indicators should follow logically from the intended benefits. Targets should be set for each indicator and for each collection period. The feasibility of refining the Bank's supervision rating system in order to take explicit account of progress on indicators should be examined.

It should not be forgotten that the point of designing and collecting indicators is to improve project performance. The data should not be collected for their own sake. Hence, any list of indicators must be parsimonious, and must clearly be related to need. Consultation among Bank staff, project management, and intended beneficiaries will help to ensure that the indicators that are collected will be of use.

Before any new data collection exercise is begun, all relevant existing data sources should be mined. The use of existing data sources and channels of data collection is important not only so as not to overburden the agency that is implementing the project with data responsibilities but also because the capacity and skills for data collection and analysis may not be available at the project level. The implementing agency should form institutional links with statistical authorities to ensure that relevant data are obtained in a timely and appropriate manner.

I. INTRODUCTION

A. Purpose of the Paper

In recent years, the World Bank has stressed that poverty reduction is its overarching objective. This paper discusses the indicators that are relevant in monitoring the performance of the Bank's efforts to reduce poverty. Its main aim is to provide guidance on the use of indicators. The paper may also be of interest to those involved in producing poverty data through household surveys and other means. Indicators can facilitate corrections in project design and implementation.[1] Performance indicators are an essential part of any project management system, but they may not reveal everything that needs to be known about a project's performance. More detailed information and analysis may be required for a full understanding of a project's impact or problems.

B. Background

This paper is one of a series of studies being undertaken as part of the follow-up to the report, *Portfolio Management: Next Steps -- A Program of Actions* of July 1993 (henceforth referred to as the *Next Steps* Report). This Report was itself a follow-up to the Portfolio Management Task Force (PMTF) Report[2] of October 1992 (also referred to as the Wapenhans Report), which discussed the quality of investments financed by the Bank. The *Next Steps* Report sought to put the recommendations of the Wapenhans Report into practice in the Bank's operations. It stated that all projects should have clearly stated objectives that are consistent with the country assistance strategy for the borrowing country. Moreover, "the implementation plan should include explicit benchmarks linking required actions with the stated development impacts of the project".[3] To assist in this process, the Central Vice Presidential Sector Departments and DEC were charged with developing a "menu" of indicators most relevant to project monitoring. This paper is part of that exercise. Unlike the other studies, this paper is cross-sectoral in scope, since poverty reduction operations may cover one or more sectors.[4]

C. Audience

This paper is primarily aimed at Bank staff members and policymakers who are involved in the indicators exercise and those with an interest in monitoring and evaluation. This paper analyzes experience in designing performance indicators in the Bank's targeted poverty projects and poverty-oriented SALs/SECALs, and sets out key considerations that should guide the choice of indicators for monitoring the poverty reduction performance of the Bank's lending.

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[1]The word "project" is used in this paper to include SALs/SECALs as well as investment operations.

[2]Portfolio Management Task Force, Effective Implementation: Key to Development Impact, September 22, 1992.

[3]Op. cit. page 15.

[4]The sectors typically covered by the Bank's poverty reduction operations are: the agriculture and rural development sector, the education sector, the population, health, and nutrition sector, the water supply and sanitation sector, the urban development sector, and the transport sector.

D. Motivation for the Paper

Two recent observations about the Bank's operations provide the basis for this study: (i) the emphasis on poverty reduction as the Bank's overarching objective; and (ii) the belief that inadequate attention to monitoring and supervision of projects is a major factor behind the deteriorating performance of the Bank's portfolio as indicated by the Wapenhans Report. The two strands are brought together here to analyze the use of indicators in assessing the poverty impact of Bank lending on poverty.

Evolution in the Bank's Approach to Poverty Reduction. Based on a review of country experience, the Bank's *World Development Report 1990 (WDR)* articulated a two-part strategy for reducing poverty. The first part involves promoting broad-based growth that makes efficient use of the poor's most abundant asset -- labor. The second part involves providing the poor with access to basic social services. *WDR 1990* also recommended that safety nets should be established to protect the most vulnerable members of society. While this approach emphasizes the importance of efficient macroeconomic policies, there is also a necessity for a Program of Targeted Interventions (PTI), which comprises investment lending that directly benefits the poor.

Since 1992, projects have been classified in the Program of Targeted Interventions (PTIs) if their design meets one of two criteria: (a) the project includes a specific mechanism for identifying and reaching the poor; or (b) the participation of the poor in the project significantly exceeds the country-wide incidence of poverty. Criterion (a) refers to narrow targeting, in other words, targeting at the level of the individual or household (for example, a nutrition project for underweight children). Criterion (b) refers to broad targeting, in other words, targeting at the level of the expenditure category, sub-sector, or geographic region. Once resources have been assigned, access is open to all (for example, resources allocated to a poorer region in a country or to very basic social services are then open to all people in that region or to all people who take advantage of the service). As discussed later, this distinction between broad and narrow targeting is relevant in the application of indicators.

Also since 1992, adjustment operations have been classified as poverty-focused if they meet one of two criteria: (a) the reform program corrects distortions that are detrimental to the poor (for example, labor market distortions); or (b) the program involves a reorientation of public expenditures towards social or infrastructure services for the poor. In several cases, poverty-focused adjustment operations also support the provision of safety nets or targeted interventions aimed at specific poor groups, include efforts to gather poverty data and monitor the impact of the adjustment program on the poor, or develop poverty reduction strategies and support better policy formulation and coordination for reducing poverty.

Based on an internal study, this paper identifies the Bank's pre-fiscal 1992 investment and adjustment operations that were directly aimed at poverty reduction. However, since the terms PTI and poverty-focused SALs/SECALs based on the above definitions have only been formally applied in the Bank since fiscal 1992, this paper uses the terms targeted poverty projects and poverty-oriented SALs/SECALs. The pre-fiscal 1992 and the post-1992 figures for the directly poverty reducing operations are not strictly comparable.

Monitoring and evaluation and the quality of Bank lending operations. In February 1992, the Portfolio Management Task Force (PMTF) was established to analyze the problems in the Bank's portfolio, in particular, the steady decline in project performance ratings. In the mid-1970s, just under

90 percent of projects were judged to be "satisfactory" at completion;[5] by the beginning of the 1990s, this figure had declined to 63.5 percent.[6]

The report of the Task Force identified poor project design, management, and implementation as major causes of the deterioration in the portfolio. It emphasized that too little attention is paid to the impact of projects on development, in particular during the period when the project is being implemented. The report noted a worrying and growing discrepancy between generally favorable project ratings during implementation and the subsequent, less favorable, evaluation ratings at completion (recorded either in the Project Completion Report (PCR) or Project Performance Audit Report (PPAR)).[7] Accordingly, the Task Force underlined the need to monitor the development impact of projects during their operational phases.

The weaknesses identified in the Wapenhans Report had not previously gone unnoticed. For example, the OED's 1992 report on project supervision commented that "the Bank's supervision procedures are characterized by an absence of automatic "flags" which would signal the need for some form of action".[8] The OED report did suggest some objective indicators that might be used, but it focused mainly on input indicators (defined below) and was less concerned with impact.

The OED's report on the monitoring and supervision of adjustment lending was critical of the lack of attention paid to the social implications of this lending.[9] The report noted that, in the early 1980s, social implications were not considered in the *President's Reports* and that "the Bank did not monitor the social impact of the programs" (p.40). However, in the second half of the 1980s, greater emphasis was given to these social dimensions, but the OED report comments that "despite the move toward greater attention to the social impact of the adjustment programs, the Country Departments (which were directly responsible for the SALs) **did not seem to have monitored these aspects**." (p.40, emphasis in the original). It is observed that some data collection was carried out under the auspices of the SDA project, but that interaction with country operations was weak[10] and that it was questionable whether the data that was collected was appropriate.

E. Scope and Organization of the Paper

This paper deals with indicators that may be used in poverty monitoring during the implementation of a project, and their merits and pitfalls. Although a detailed discussion of the methods and institutional arrangements by which data related to these indicators is collected, analyzed, or fed-back

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[5]OED assigns a "satisfactory" rating to operations that have achieved or exceeded the goals set at appraisal (or subsequently if substantially reformulated) and attained significant benefits relative to total costs.

[6]Table 1-5 of OED Evaluation Results for 1991, 1993. No such trend exists in the *ex post* ERRs, but these are not calculable for all projects.

[7]A recent paper shows there to be little discrepancy between PCR and PAR ratings (Memo by J. Adams and H. Köpp "ARPP and PCR/PAR Ratings", May 11th 1993).

[8]"Bank Experience in Project Supervision", OED, 1992, Report No. 10606.

[9]"Effectiveness of SAL Supervision and Monitoring", OED, 1991, Report No. 9711.

[10]However, as of July 1990, most SDA staff have joined country departments.

into the project is beyond the scope of this paper, these issues are not altogether neglected as they are of great importance in the process of using indicators to monitor poverty. The paper focuses on indicators that measure performance in achieving project goals rather than on the physical or financial indicators such as hiring of consultants or procurement rates that are usually part of the project reporting and management process.

Part II provides the conceptual framework for assessing the performance of poverty reduction operations. It outlines relevant definitions, discusses the evolution of thinking on the role and scope of monitoring systems, develops a typology of indicators, and reviews key issues in interpreting these indicators. It also discusses the desirable properties of an indicator, and the characteristics of a good poverty indicator. Part III reviews performance indicators in the Bank's 178 IDA targeted poverty projects and 32 IDA poverty-oriented SALs/SECALs that were approved during fiscal 1988-93, and discusses the main findings of the review. Final words are presented in Part IV.

II. CONCEPTUAL FRAMEWORK

A. Historical Notes

During the 1970s, the Bank invested heavily in the development of monitoring and evaluation (M&E) systems, especially as part of the expansion of lending to agriculture and rural development. The Bank's commitment to M&E continued in the 1980s, but the way in which these activities were carried out in the 1980s was radically different from before, most notably by the deliberate separation of "monitoring" from "evaluation".

Several lessons can be learned from this experience.[11] By the early 1980s, there was disenchantment with the notion of including substantial M&E components in projects. Monitoring and evaluation activities were major data collection exercises that diverted attention from the simple monitoring of implementation. More importantly, they failed to collect data to monitor impact. In the early 1980s, the Bank introduced new guidelines that separated monitoring from evaluation. Monitoring was to be the direct responsibility of project management, and was to range from monitoring inputs to simple and rapid techniques of beneficiary assessment. Formal impact evaluations were recommended only for selected projects, to be conducted typically by an external agency and with close support from the Bank. These guidelines, developed under the Bank's leadership, were accepted by other major donor agencies.

According to some observers,[12] the Wapenhans Report, once again, blurs the distinction between "monitoring" and "evaluation" by referring to "impact" when what is meant is "output". The report points out that the focus of monitoring should be on "output/benefit" indicators rather than on downstream socio-economic "impact" indicators. These observers reject the idea that "higher order impact variables" can (or should) be collected on a routine basis. Further, they emphasize that developing standardized indicators goes against the Bank's previous experience and indeed the PMTF's main text. Good appraisal

[11]See "OED Study: Overview of M and E in the Bank - A Commentary on Study Design and Approach Papers", aide memoire, Dennis Casley, 9/21/93.

[12]Notably Dennis Casley.

reports take a process approach to monitoring rather than a blueprint approach; they discuss what is required of the monitoring system, but the precise indicators and mode of collection are left to project management. Standardized indicators are likely to run counter to the emphasis on project "ownership" and may result in simple "box filling".

In this paper, we recognize that the selection of indicators should be sensitive to the fact that impact indicators may be costly to collect and may be influenced by exogenous factors, and that a rigid list of indicators applicable to all poverty projects cannot be drawn up. However, we do not accept this rejection of the use of impact indicators in the monitoring process for two reasons. First, it is possible to define the intended benefits of a project sufficiently clearly at the time the project is being considered so that indicators can be identified that may be used to assess whether these benefits are being realized during implementation. Second, the process of developing indicators should be used to identify problem projects and facilitate mid-course changes in project design and implementation while the projects are being implemented. Hence, some assessment of expected impact should be made during the lifetime of the project in the case of all projects.

It may be that impact indicators are not required since the link between "process" and "impact" is clear and well-established.[13] For example, the number of women consistently attending literacy classes using well-proven techniques will serve as an adequate indicator so that there is little need to measure female literacy. Similarly, the contraceptive prevalence rate may be a fairly accurate proxy for the level of fertility. The educational level of the household head tends to be a good proxy for household income, especially in Latin America. These examples make a case for using "proxies" for impact, although this does not undermine the need for monitoring impact. Where the link between "process" and "impact" is well-established, impact indicators should not be collected.

In the health sector, the links between process and impact are particularly obvious in specific cases. One study of indicators to be used to monitor child health includes two "process" indicators (prenatal care and immunization status) as these variables are highly correlated with their associated impact. In a review of the impact of health projects in three developing countries, it was argued that impact indicators were costly to collect and often inaccurately measured, so that "process" indicators were in fact preferable.[14]

B. Current Guidelines on the Use of Indicators

Operational Directives 10.70 (September 1989) on "Project Monitoring and Evaluation" and 13.05 (March 1989) on "Project Supervision" are of particular relevance to this paper for two reasons, first, for the M&E framework they lay out and for the role they assign to supervision within that framework and second, for the specific guidelines they provide with respect to indicators.

Monitoring is defined as "the continuous assessment of project implementation in relation to agreed schedules, and of the use of inputs, infrastructure, and services by project beneficiaries" (OD

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[13]This point was made by Krishna Kumar at a recent OED Seminar.

[14]Rashid Faruquee "Analyzing the Impact of Health Services: Project Experience from India, Ghana, and Thailand", World Bank Staff Working Paper No 546, 1982; and C. Arden Mill, Amy Fine, and Sharon Adams-Taylor, *Monitoring Children's Health: key indicators* (2nd edition), American Public Health Association, 1989.

10.70: paragraph 2). Evaluation is the "periodic assessment of the relevance, performance, efficiency, and impact (both expected and unexpected) of the project in relation to stated objectives" (OD 10.70: paragraph 3). Three types of evaluation are identified -- interim evaluation, terminal evaluation, and impact evaluation.

The monitoring system is expected to include information of an "output" nature. Specifically, it should cover four areas: (i) the procurement and delivery of goods and services; (ii) the use by beneficiaries of project structures and services; (iii) the reasons for unexpected reactions by beneficiaries; and (iv) the "measurement of output indicators such as productivity gains to the extent that these can be measured during implementation" (OD 10.70: paragraph 14). Later, it states "beneficiary contact and diagnostic studies are often called "ongoing evaluation", but fundamentally they are an integral part of good monitoring" (OD 10.70: paragraph 16). Hence, the ODs that are currently in force do not contain the distinction between "monitoring" and "evaluation" quite so clearly as was intended in the early 1980s.

The distinction is necessarily blurred by the requirement in OD 13.05 of supervision missions to assess "development impact". Each mission files the findings from that mission on Form 590. The first two sections of this form give the development objectives and project components (which are drafted by the task manager, based on the SAR/President's Report and legal documents, for the initial Implementation Summary following the approval of the loan). The OD clearly states that the development objectives are defined in terms of ends not means; "in a road construction project, the objective is not to build a road, but to improve communication and thereby develop new or more efficient markets. The road is the means (the project component) to achieve this" (OD 13.05: paragraph 16).

Each supervision mission must assign a rating between 1 and 4 to the project in relation to how well it is achieving its development objectives using the following key: (1) all development objectives are expected to be substantially achieved; (2) the major objectives will be met, but some minor ones may not; (3) the major objectives are likely to be achieved in part, but there is some doubt about whether the project continues to be justified; and (4) major objectives will probably not be achieved and the project no longer appears to be justified. The development objective rating is seen as pivotal, since the overall rating can never exceed the development objective rating.[15,16] Other than this key, there are no explicit guidelines on awarding the rating for development objectives, for example, based on performance indicators. As discussed below, OED reports have been critical of the arbitrary nature of this rating system.

Supervision reports are required to present the Key Performance Indicators (KPIs) for the project. The supervision reports "should display in tabular form quantitative measures of project performance in critical areas, such as construction progress, yields, adoption rates, enrollments, target groups reached, traffic, operating efficiency, and finance" (OD 13.05 Annex D4: paragraph 6). The OD also offers the following definition: "an indicator is a measure -- directly observed or derived -- which indicates movement towards, or away from, an agreed project target" (OD 10.70: note 4).

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[15]In addition to the rating for development objectives, each Form 590 must report ratings (all in the range 1 to 4, but with a different key in each case) for the following: overall status, compliance with legal covenants, project management performance, and availability of funds. Ratings may also be given for procurement progress, training progress, technical assistance progress, studies progress, environmental aspects, and financial performance.

[16]In practice, some supervision reports do record overall status ratings that are higher than those for development objectives, but this (mal)practice is less prevalent for investment projects than for SALs/SECALs.

The indicators are to be based on the Staff Appraisal Report (SAR) and should not normally exceed one page. Annex D6 of OD 13.05 gives a sample table of KPIs for an agricultural project (units in parentheses); the indicators listed are: annual coffee production (ton); annual maize production (ton); average coffee yield (kg/ha); bush clearing (ha); irrigation development (ha); factory construction (percentage completed); processing machinery procurement (percentage completed); farm and access tracks (km); sales revenue (local currency value); cost (value); pre-tax income (value);[17] staff additions -- management and field staff (number); and consultancy (work months). In addition to actual achievement at supervision date, the table should also show the appraisal "target" for completion and at the supervision date. Hence, even though the OD says the indicators are to be "based" on the SAR (rather than "identified" in the SAR), it is also requires that the targets be taken from the SAR, implying that the indicators must have been explicitly identified in the SAR.

As we document in Part III, the identification of explicit targets for performance indicators remains the exception rather than the rule. The fact that key performance indicators (KPIs) are not linked to supervision ratings in the Operational Directives is also surprising. The feasibility of modifying Form 590 to report most recent values (against targets) of the KPIs and of incorporating an explicit link between supervision ratings and performance as measured by KPIs needs to be explored.

A recent directive (dated September 17, 1993) requires "the preparation of implementation plans and their inclusion in loan documents in an appropriate form". Implementation plans are to be prepared early in the project cycle, at the preparation/preappraisal stage. Key development impact indicators for measuring progress in reaching project objectives are an element of the implementation plan. However, once again, an explicit link between performance on the indicators and implications for project implementation seems to be lacking.

In potential conflict with the requirements specified in *Next Steps* that indicators must be drawn up for each sector, it is also stated that "there can be no standard list of indicators" (OD 10.70: paragraph 17). This conflict could be avoided by emphasizing that the indicators exercise is intended to provide an "indicative" list of options. OD 4.15: *Poverty Reduction* (December 1991) lists suggested indicators for monitoring country progress in poverty reduction. These indicators fall into three categories: (i) poverty lines (headcount index by upper and lower poverty line); (ii) short-term income indicators (unskilled wage, lower income CPI, and rural terms of trade); and (iii) social indicators (share of public expenditures for basic services in GDP; net primary enrollment, child mortality, immunization, child malnutrition, female-to-male life expectancy, total fertility rate, and maternal mortality). Some of these indicators are applicable at the country level and so are relevant only to SALs/SECALs, whereas others may be used on a localized basis for project assessments (discussed in section E). Poverty indicators are discussed in detail in section F below.

[17]It is not clear to whom these financial indicators apply.

C. Typology of Indicators[18]

It is useful to distinguish among three classes of indicators: (i) "input" indicators; (ii) "process" or "output" indicators; and (iii) "impact" or "outcome" indicators.[19]

Input indicators measure the "means" by which projects are implemented. They may either be quantitative (for example, work months undertaken, number of extension workers trained, or amount disbursed) or qualitative (for example, relevance of agricultural extension to farmer needs). Input indicators are a key tool in project management, and collecting them is vital for identifying the causes of any problems that may arise. Examples of input indicators from a specific PTI project are shown in Table 1. However, while inputs are a necessary condition for project success, they are not sufficient by themselves. The next stage to consider is whether or not the inputs have resulted in the desired outputs.

Table 1: Indicators used in an education project

Type of indicator	Indicators used
Input	Number of trainees identified; number of trainers trained; number of trainees signed up; amount of credit disbursed/recovered/outstanding; materials purchased or adapted; information disseminated; number of user groups formed; number of schools to which funds were disbursed; number of girls admitted to stipend program; number of girls receiving bank passbooks for stipends; number of female teachers hired.
Process	Number of girls trained; number of girls who received counselling suited to their needs; number of students trained; number of facilities installed/repaired; number of facilities in operating condition; amount of stipend disbursements.
Impact	Number of girls employed from project schools

Source: Bangladesh Female Secondary School Assistance Project, SAR No. 11386-BD, fiscal 93.

Process indicators measure the extent to which the project is delivering what it is intended to deliver. For example, in a feeder road project, process indicators would be: the length of road constructed, the length of roads rehabilitated, and the length of roads covered by sustainable maintenance

[18]Sverrir Sigurdsson's early work on the subject is used as the basis for this discussion.

[19]The logical framework adopted by many donors -- but not the Bank -- has four categories (viz. input, activity, output, and goal). For a discussion of the logical framework for monitoring and evaluation developed by the Bank's Economic Development Institute, see "Women's Enterprise Management Training Program", Vanita Viswanath, EDI, 1994.

systems. In a primary education project, process indicators would be: the number of schools rehabilitated, the pupil/desk ratio, the pupil/textbook ratio, the pupil/exercise-book ratio, and the volume of use of library services.

Impact indicators measure the project's impact upon the living standards of the poor in the borrowing country. The definition of impact indicators is informed by the principal conclusion of the Wapenhans' Report that "the Bank's success is determined by benefits on the ground -- sustainable development impact -- not by loan approvals, good reports, or disbursements" (p.ii).

Indicators are classified as input, process, or impact indicators in relation to the overall project objective. There can be different levels of objectives for each project. For example, in a smallholder agriculture development project, the *immediate* objective may be to train extension workers, the *intermediate* objective may be to provide extension advice to smallholders, and the *overall* objective may be to improve living standards of smallholders. It is conceivable that there could be input, process, and impact indicators that reflect whether each of the objectives are being achieved. To be consistent in classifying indicators as input, process, or impact indicators *for the project as a whole* (rather than for each of the objectives separately), this paper uses the overall development objective of the project as the basis for classifying indicators. In other words, an indicator is classified as an input, process, or impact indicator depending on whether it reflects the means, process, or end in achieving the overall development objective of the project.

It is, however, difficult to design a clear cut typology. Difficulties arise in making a clear distinction between input, process, and impact indicators. Consider the example of an agricultural extension project. Two possible indicators are the number of farmers trained and number of farmers adopting the recommended techniques. The latter is clearly a process indicator, but it is not obvious how to categorize the former. Training is an outcome of the project, but it is an input for improving agricultural practices. This example illustrates that it is best to think of indicators as a *spectrum*, beginning on the left-hand side with inputs that lead to certain activities that are themselves inputs into achieving the desired project outcomes. The allocation of certain indicators to one of the three categories necessarily has a subjective element to it, depending upon where the dividing line is drawn. In this study, we attempt a consistent approach across projects, but accept that others may have assigned certain indicators differently. In the agricultural extension example, we would classify both as process indicators.

The definition of impact indicators contains three qualifications that need to be clarified. First, we are concerned with living standards rather than income alone. Some measures of health and education (for example, number of days of illness in the previous month or female literacy rates) will most likely result in higher income, but they also represent an increase in the standard of living in their own right. Second, we are concerned with the poor since this study focuses specifically on poverty. Third, we include all the poor in the borrowing country, not only those identified as project beneficiaries, since externalities (either positive or negative) affecting poor non-beneficiaries may be substantial (for example, forced resettlement or adverse environmental impact).

Impact indicators will usually be the most difficult to collect, partly because of lags between implementation and impact and between impact and the collection of data relating to that impact. Nevertheless, the monitoring of impact during implementation is a major motivation for the current exercise, and so this problem must be tackled. Some impact indicators can be monitored qualitatively by, for example, carrying out beneficiary assessments using rapid appraisal methods (such as focus groups), whereas others will require sample surveys. Surveys may be sharply defined priority surveys

or more general household or community surveys. A priority survey is a survey that focuses on a few key questions with the purpose of addressing a specific issue, while community and household surveys are more wide-ranging both in the number of questions that they ask and the number of issues that they aim to address. Larger surveys are, of course, more expensive, and so there is necessarily a trade-off between the type of data collected and the speed and cost of collection.

It is clear that the different indicators form a causal chain for the analysis of the success or failure of a project. In the past, the Bank appears to have emphasized input indicators, whereas good monitoring requires a balanced use of all three types of indicators. In general, if the development impact indicators indicate poor performance, the reasons may be as follows: (i) the inputs have not been delivered; (ii) the inputs have been delivered but have not resulted in the intended output (indicating poor project design); (iii) the outputs have not resulted in the desired development impact. This last case may also be symptomatic of poor project design (for example, providing services that are not wanted) or may result from adverse changes in external factors (for example, weather conditions or commodity prices), which will also require some design modifications. In addition, measuring the wrong indicator at any stage of the monitoring process may obscure the true picture of the success or failure of the project.

Definitions

Using the concepts that we defined in the earlier discussion, we adopt the following terminology in this paper. Monitoring refers to tracking project input and process indicators as well as determining impact during project implementation, either directly through impact indicators or indirectly through proxies. The latter is often referred to as "ongoing evaluation" in the general literature on the subject. Evaluation is the assessment of the project's impact after implementation is complete.

It should be clear that indicator collection is only a part of the project management and monitoring system. Indicators can expose problems and may shed light on some of the causes of the problems, but they are not a substitute for more in-depth evaluative work. Indicators are precisely that -- "indicative".

D. Interpreting Indicators

Indicators should yield information that can be interpreted in a "with" versus "without" manner, giving a picture of what these indicators would be if the project had not taken place. Ideally such counter-factual analysis is conducted through modelling the effects of interventions, but such an approach is not practical on a project by project basis (although it should be possible for poverty-oriented adjustment lending). "With" versus "without" analysis needs to take account of activities in the absence of the project; if there were to be no public provision then private contributions might provide at least some of the goods and services so that the "without" case is not the absence of all activity.[20] Project analysis has to rely on "before" versus "after", control groups, and an understanding of exogenous factors that may influence the chosen indicators. A combination of existing data, the collection of some extra data, and beneficiary assessments done during project preparation and at different stages of

[20]See "Private Transfers and the Effectiveness of Public Income Redistribution in the Philippines", Donald Cox and Emmanuel Jimenez, World Bank Conference on Public Expenditures and the Poor: Incidence and Targeting, 1992.

implementation should help in design and implementation and provide for before/after comparisons. Formally, there are three different evaluation methodologies that may be applied.

"Before" versus "after" analysis compares the value of the indicator before the project and at the current time. Either the whole change is attributed to the project, or an attempt is made to remove the influence of external indicators (counterfactual analysis). This approach is called reflexive comparison. *Reflexive comparison* is most appropriate for input indicators, since we assume that no project would have taken place in the absence of the inputs; thus, there is no need to attempt any counterfactual analysis. However, such an assumption is not usually valid for output or impact indicators since trends or fluctuations reflecting the influence of other factors are common for these types of indicators.

Control groups are used to allow for changes in these external factors, where the control group is like the treatment group in all respects except for being subject to the project intervention. Control groups may be constructed by either matched comparisons or experimental design.

Matched comparisons define a control group that is as similar as possible to the treatment group (those project beneficiaries for whom data are being collected). The identification of the control group may be done either *ex ante* or *ex post*. The main problem with this approach is the danger of sample selection bias, since some characteristic that is an important determinant of outcome may also influence the project participation decision. For example, training may be given to those members of the population with higher initial aptitude. Hence, if project participation has been determined in a non-random manner, the analysis of the impact of project participation must be carried out jointly with an analysis of participation decisions.

Experimental design avoids the problem of sample selection bias by selecting equally eligible individuals (or some other project participation unit) for participation in the project *ex ante* on a random basis (and the others to the control group). Hence, statistically speaking, the two groups are identical other than in the fact of their participation in the project, so that any difference in outcome may be attributed to the project.

Box 1 reports on the Bank's evaluation of the Bolivian Social Investment Fund, which has used all three evaluation methodologies. Experimental design is the strongest methodology, but this also requires more careful planning. This evaluation methodology needs to be determined at the time the project is being designed, so that participation in the project is determined on a random basis.

It is also more generally beneficial that evaluation design should be determined at the project design stage or, at least, in the early stages of the project. Not only does the evaluation benefit from being built into the project, but also the discussion of "what to evaluate" can sharpen the focus of the project. From the evaluation point of view, a baseline survey to establish initial values for the indicators is essential. If such data do not already exist, such a survey should be one of the first responsibilities of the project. Of course, some data must have existed for the project to have been undertaken, at all, and the possible use of these data for the baseline should not be overlooked.

Box 1: Evaluation of the Bolivian Social Investment Fund

The Bolivian Social Investment Fund (SIF) is designed to channel money to projects in the health, education, and water supply and sanitation sectors. A pilot evaluation study is being undertaken in the El Chaco region, a relatively homogenous poor region largely inhabited by the Guaraní.

Three surveys will form the basis of the evaluation: a baseline survey from 1993 (prior to any SIF interventions in the region), a follow-up survey one year later and a final survey approximately five years after the SIF interventions are complete. So far, the baseline survey has been completed and the first of the follow-up surveys is being planned. The three evaluation methodologies -- reflexive comparison, matched comparisons, and experimental design -- are being used in the study.

All 93 health centers in the Chaco region will benefit from SIF-financed upgrading, so that there can be no control group. Therefore, the evaluation for the health sector adopts the reflexive comparison methodology. The household survey, a clinic facility questionnaire and a community questionnaire, will be used to collect data on health status indicators and exogenous factors. Regression analysis will be used to examine the impact of the project-financed interventions.

Ex ante matched comparisons will be used in the water and sanitation sector. Even though the interventions have not yet been made, the sub-project areas have already been identified, so that an experimental design cannot be used. A control group will be constructed from areas that are not receiving the intervention. The household survey and community questionnaires will collect data for both the treatment and control groups. Econometric controls will be used to assess the net impact of the project intervention.

The SIF resources are insufficient to provide assistance to all equally eligible schools, so that schools will be allocated to the treatment group on a random basis. The non-treatment eligible schools will be the control group. Hence any difference in the impact indicators shown by the data collected in the education component of the household survey or in the schools survey will be attributable to the SIF intervention.

Source: Based on the on-going research project "Evaluation of Social Sector Investments," John Newman and Laura Rawlings, World Bank, 1993.

E. Desirable Properties and Other Issues in the Choice of Indicators

Desirable properties of an indicator

An indicator should possess five desirable properties as presented in Table 2. These five properties are discussed in turn.

Unambiguous definition and interpretation. The first requirement is a precise definition of the indicator. This is especially important since a vaguely defined indicator (for example, training evaluation) will be open to several interpretations, and may end-up being of little policy relevance. Also, if an

Table 2: Desirable Properties of Indicators

Criterion	Definition
Unambiguity	Indicators must be precisely defined so that their measurement and interpretation is unambiguous.
Consistency	Indicators should give objective not subjective data, that is, they should be independent of the person who is collecting the data.
Specificity	The indicators should reflect those things that the project intends to change, avoiding measures that are largely subject to external influences.
Sensitivity	Indicators should be sensitive to project-induced changes.
Ease of collection	It must be feasible and relatively inexpensive to collect chosen indicators within a reasonable time frame.

Source: Casley and Kumar, *Project Monitoring and Evaluation in Agriculture*, Johns Hopkins University Press, Baltimore, 1987.

indicator is not clearly defined, it may be measured in different ways at different times and places. For example, does "adoption of a new technique by a farmer" mean that he or she buys, for example, some fertilizer only once (if so, how much?), or must the purchase be repeated (if so, how often and for how long?), and should the application of the new technique be monitored (if so, over what period)? Another example is the health indicator "immunization coverage". In this case, the age group must be clearly defined as must the definition of "coverage" -- does it include all those undergoing a course of injections or only those that have completed the course?[21]

A related issue is that of qualitative indicators. There is no doubt that quality matters as well as quantity; for example, the quality of education received is important, not just the enrollment rate. Nevertheless, many aspects of quality can, and should, be captured by quantitative indicators (for example, the pupil-textbook ratio and teachers' qualifications). In some cases, however, the need for qualitative judgement cannot be avoided as for example, in the assessment of consultants as being "very useful", "useful", or "useless".

It is important that the indicator allows for unambiguous interpretation, that is, we know "*which way is up*". Many indicators cannot be interpreted correctly without additional information. For example, health may be monitored by the nutritional status of infants seen at a particular clinic. However, a successful IEC campaign may lead to a deterioration in this indicator as mothers respond by bringing children to the clinic when they would not otherwise have done so. The improvement of the services provided by the clinic as a part of the project may have the same effect. In the education sector, the pupil-teacher ratio is often used as an indicator. It is intended that this ratio should increase in order

[21]The standard used traditionally in the health sector is full coverage.

to improve efficiency (in other words, reduce unit costs), yet in other instances, it is intended that the ratio should fall to allow the quality of teaching to improve. The Housing Indicators Program includes the rent-to-income ratio among their key indicators. While from a tenant point of view a decline in the ratio is clearly desirable, the desired outcome of market deregulation is an upward movement (as rent controls are relaxed). In all such cases, the conclusion is not necessarily that the indicator should be rejected, but that the purpose for which it is collected should be clearly identified, the desired target levels stated, and the other factors affecting the indicators should be discussed.

Consistency. As indicated, consistency in the collection of data is largely obtained by having a well-defined indicator. This criterion does not preclude the use of beneficiary assessment indicators (see below), but such indicators will be particularly prone to variations in terms of who collects the data and how it is collected.

Specificity. In choosing indicators that are endogenously influenced by project-related factors, we should be aware that, as we move from inputs to impact, the potential role of other factors increases. The issue here is one of interpretation, rather than only of definition, that is, it is important to be aware of the other factors affecting the selected indicators. In general, data on external factors that are important to the success or failure of a project should also be included among the indicators collected (for example, the world market price of an export crop grown by the poor).

Sensitivity. Similarly, impact indicators are less likely than input or process indicators to satisfy the sensitivity criterion. The important related issue is of the scope of collection -- beneficiary tracking versus population monitoring. Beneficiary tracking involves the collection of indicators only for the beneficiaries of the project, whereas in population monitoring, the indicators are collected for the whole population of the project area (discussed in paras 76-78).

Ease of collection. Finally, the indicator should be collectible. For example, an indicator such as "lifetime earnings" would not be a good measure of the impact of a Vocational Education project simply because we would have to wait a lifetime to get any information about beneficiary earnings. A useful proxy of lifetime earnings may be the salaries associated with jobs obtained by those provided with vocational skills.

Different types of indicators require different collection methods. One objection to measuring impact is the scale of the operation required to collect the required data. However, properly designed sample surveys need not be especially large or costly. For most numerical indicators, a sample survey will be required. Nonetheless, collection costs are one main reason for relying on more readily available proxies for some impact variables, for example, prices and production data rather than income data. Rapid survey techniques (such as focus group discussions) are more appropriate for diagnostic analysis of problems in project design and implementation.[22]

Some indicators, notably specific impact indicators, may be particularly prone to measurement error. For example, a study found that growth monitoring was not a good way of identifying children

[22]See the discussion by Dennis Casley in his introduction to Krishna Kumar (ed.), *Rapid Appraisal Methods*, World Bank, 1993.

at risk from undernutrition because of inaccuracies in measurement.[23] It was suggested that use be made instead of known risk factors (such as family income and mother's education) to identify children at risk.

Other issues in indicator selection

Scope of collection: sectoral indicators versus project indicators. It is important to make a clear decision about measuring indicators either at the project level or at the sectoral level. The Wapenhans Report was concerned with measuring the impact at the project level, which some argue misses the point that successful projects are of little use if the sector as a whole is performing badly. However, the collection of indicators at the sector and the project level are not mutually exclusive -- they are just measuring different things. Project indicators are an important part of project monitoring and supervision. Sectoral indicators are required for adjustment operations and may also be relevant for project monitoring.

For adjustment lending, or investment lending with national policy components, it is appropriate to monitor sector-wide indicators at the national level. For example, social sector SECALs typically include policy components (such as reorienting public expenditures across sectors or subsectors and between functional categories, for example, salaries versus non-wage operations and maintenance) that require national level monitoring. It is also desirable to monitor social indicators during adjustment operations. As illustrated in Box 2, the audit report (fiscal 1990) for Jamaica SALs I-III suggests a range of indicators that can be used to monitor social progress during adjustment. Many of these indicators are being collected through a household survey of living conditions which has been undertaken annually since 1988. National data may also sometimes be used for control purposes. Sector-wide indicators are also of use in identifying which projects are necessary and where (discussed below). Nevertheless, in order to monitor the impact of a specific project in a specific area, project indicators will be required.

For some indicators, spatial variations are an important part of the information conveyed by the indicator. Service provision, health and education inputs and outcomes, and prices are examples of variables that may vary among (and even within) regions, so that it is often necessary to collect data on a very localized basis for some purposes.

Most indicators may be collected at either the local or the national level, although there are some indicators for which only national collection is appropriate. From the list of priority poverty indicators given in OD 4.15, the share in GDP or total government expenditures of public spending on basic services falls into this category, though others, notably the poverty indices, will also be too costly to collect at the project level on a routine basis. For the most part, "sector" and "project" indicators are not different indicators. The difference lies only in the area or coverage of data collection. Therefore, the discussion in this paper about the merits and pitfalls of certain indicators is valid in terms of how they are used at both project and national level.

Uses of Indicators Performance indicators can serve a number of purposes. Not only are they an important instrument for project monitoring, but they can also strengthen project appraisal. The level of indicators for a specific project or sector can help to convince the government of the need for action.

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[23]Nancy Gerein and David A. Ross, "Is Growth Monitoring Worthwhile? An Evaluation of Its Use in Three Child Health Programs in Zaire", *Social Science Medicine*, vol.6 667-675, 1992.

Box 2
Jamaica: Monitoring performance indicators during adjustment programs

The Performance Audit Report(PAR) for Jamaican SALs I-III discusses the data requirements for analysis of the social impacts of adjustment programs.

At the macro level, the most important data are those capturing the purchasing power of the more vulnerable groups and to the relative prices that they face. Amongst such variables are unemployment rates, wages for unskilled & semi-skilled workers, relative prices of agricultural products, and relative prices of basic food staples.

But some disaggregation of the these data substantially increases their analytical usefulness. Unemployment and wage rates for example are likely to be particularly revealing for workers who are on the margin of the labor market (e.g. females) and for those with relatively low skills and schooling. Because the families of many of the more vulnerable gain income from subsistence agriculture, agriculture production for the domestic market, informal sector activities, and indicators of trends in relative prices for these sectors will be most useful. With regard to government expenditures, decomposition into capital and current and the salary:non-salary components of each is likewise desirable for assessing the social sectors.

At the micro level, indicators are desirable for outcomes related to the social sectors, inputs that affect those outcomes, and the proximate income and price determinants of those outcomes at the household level - for example: cases of malnutrition, proportion of low birthweight babies, infant and child mortality, school dropout, and repetition rates. It would be desirable for such data to be collected from random surveys (perhaps stratified to focus on lower-income groups).

In addition to the above discussion, the PAR includes data on: unemployment (biannual by sex, job-seeking rate by sex, by age, by industry); employment (total and self-employed, by wage, income group, and sex, "well paid" women versus men); wages, prices and incomes (nominal and real wage trends, median wage by sex, consumer price index;); real agricultural GDP; real per capita government expenditure by social sectors (recurrent and capital); education (pupils per teacher (primary and secondary); capacity; output of different skill levels'); health (nutritional assessment of children weighed at health clinics (Gomez classification); mean nutrient intakes by residence, income, and age, sex and occupation of household head; admissions from malnutrition, malnutrition-gastroenteritis and gastroenteritis at children's hospital; population per public sector physician; number of hospital beds; percent of children immunized for DPT, polio, measles and BCG); vital statistics (population, live births (rate), death (rate), infant mortality rate, child mortality, marriage and divorce rate); number of poor registered for relief assistance; per capita production of non-export crops; per capita final consumption expenditure by category; food imports; average daily water production and consumption.

Source: OED Project Preparation Audit Report No. 8018, August, 1989.

More generally, indicators help keep governments informed about what priority interventions are needed in that sector. A discussion of appropriate performance indicators should be held early in the project cycle and should be part of the Bank's dialogue with the government.

One example of this "gatekeeping" function involves data on access to safe water. In most countries, the percentage of the population with such access is usually far lower in rural than urban areas,

for example, in Ethiopia (9 percent in rural areas, compared to 69 percent in urban), Mali (19 percent and 46 percent, respectively), and India (17 percent and 80 percent, respectively). However, in Bangladesh, the situation is the opposite, with 89 percent of the rural population having access to safe water, compared to only 37 percent of that in urban areas. Even though the majority of the population live in rural areas, these figures imply that there are, in absolute terms, slightly more people without access to safe water in urban areas than in rural ones (11 million compared to 10 million). Hence, urban schemes are as least as important in expanding access to safe water as are rural ones, whereas in most countries, rural water supply appears to be the priority.

Ownership. There may be a potential conflict between the proposal in *Next Steps* to draw up a "menu" of indicators and the issue of ownership that was emphasized in the Wapenhans Report. The conflict would be especially likely to arise in cases where the system of indicator reporting was imposed from outside, in which case neither borrowers nor Bank staff would cooperate with such a system. However, such a conflict need not occur in practice. The trade-off can be minimized by establishing the scope of the monitoring system early in the project cycle, preferably at the appraisal stage. The identification of key performance indicators (KPIs) is part of this process, though they can be subject to review when the project is initiated. The baseline survey (which would be required in cases where relevant data do not exist) must be undertaken before any project interventions are made. Moreover, indicators cannot be changed while the project is operating or there would be no continuity in the monitoring process.

Conflict and confusion will also be avoided by a clear definition of the relationship among the indicators exercise, the Bank's supervision process, and monitoring. The indicators detailed in the Staff Appraisal Report (SAR) or identified at the start of the project, should be collected by (or at the direction of) the project management, who will use them as a management tool. These data will then be available to (but not be collected by) Bank supervision missions, who will use them in their own project ratings. Bank staff should clearly not use indicators to rate projects that are not considered to be relevant by project management and beneficiaries. Designing indicators at the same time as the project is being designed is likely to lead to better evaluations.

Beneficiary inputs into indicators. Beneficiaries can be involved with indicators in three ways: (i) they can help to identify indicators; (ii) they can be respondents in beneficiary contact monitoring; and (iii) they can participate in beneficiary assessments. Beneficiary input into the selection of indicators can be of assistance in defining not only appropriate indicators but also appropriate activities. Many "process" and "impact" indicators fall under the heading of "beneficiary contact monitoring" since measurement requires some form of contact with beneficiaries, although the form of this contact may vary. Beneficiary assessment is a subset of beneficiary contact monitoring, in which the views of the beneficiaries are actively sought.

Ravallion argues that the measures chosen should be a mix of welfarist and non-welfarist approaches.[24] The former assumes "people know what is best for them" and so indicators can be based on observed behavior or people's reactions. Non-welfarist measures do not share this assumption and use "objectively defined" criteria such as nutritional intake. Beneficiary inputs are a way of assuring that a mix of indicators is achieved. Some argue that beneficiary assessment is an adequate substitute for impact indicators; if the beneficiaries are content then the project has achieved its goals. Others point

[24]See "Poverty Comparisons", Martin Ravallion, LSMS Paper 88, 1992.

out that beneficiary assessments and "traditional surveys" may sometimes give conflicting information; for example, in one project, beneficiaries reported that they were worse off than before despite the fact that a survey showed that incomes had actually risen. Hence, it is necessary to have both sources of information. The discrepancy may yield interesting insights.

Indicators to monitor the degree of beneficiary participation in projects include, for example, the number of beneficiary group meetings held, how often they were held, the number of decisions taken democratically, and the number of project components/subcomponents executed by the group.[25]

Collection of indicators data. Perhaps the main lesson from the 1970s is to guard against collecting indicators for their own sake. Data collection is not an end in itself, but only a means to the end of improving project performance to realize development objectives. The indicators exercise will be severely limited if it is perceived to be data collection for its own sake. Hence, any list of indicators must be parsimonious, and it must be clearly related to need. Consultation between Bank staff, project management, and intended beneficiaries will help to ensure that the indicators that are collected are of use. It is important to avoid over-burdening the project agency that is implementing the project with data collection responsibilities. This problem may, in part, be avoided by making the maximum use of existing data.

F. Characteristics of a Poverty Indicator

Methodological Considerations

A necessary condition for developing a useful set of indicators is that the development objectives of the project are clearly laid out. From these objectives, the benefits to be realized can be listed and the related indicators designed. However, a two-way relationship between objectives and indicators is conceivable. Discussing the choice of indicators at an early stage of project preparation can actually help to define and secure consensus on objectives between the borrower and the implementing agency. Early identification of indicators can contribute to the process of arriving at a well-designed project. In this section, we first discuss conceptual issues relating to the selection of indicators, focusing on issues of particular relevance to poverty indicators, and, second, we outline the advantages and limitations of using specific indicators. It is important to bear in mind that the discussion here is not intended to identify the "right" indicator. For any project, there will exist a range of suitable indicators, and selecting the indicators should involve project beneficiaries and management.

There are only three measures of poverty *per se*. They are the poverty indices -- the headcount index, the poverty gap index, and the squared poverty gap (or severity) index. Other poverty indicators fall into two categories. First, there are poverty-related indicators -- variables of particular relevance to the well-being of the poor such as the rural terms of trade or the unskilled wage index. Whether a particular indicator can or cannot be interpreted as poverty-related varies depending on country-specific circumstances. Second, existing indicators may be disaggregated in such a way as to focus on the poor. The usual disaggregation is by gender and/or region (or rural-urban), but where possible, it could also be by income group. This has been done in countries such as Indonesia where household-level data on

[25]See "Participatory Evaluation, Tools for Managing Change", Deepa Narayan, Technical Paper 207, World Bank, 1993 for a discussion of indicators to monitor participation.

the utilization of schools and health facilities allows an attribution of public subsidies to households in different income groups. Such incidence studies show how the benefits of public education and health expenditures are distributed and provide an indication of desirable reforms.[26]

Indirect versus direct measurement of poverty. The issue of direct versus indirect measurement may be illustrated by reference to targeted interventions for the poor. A targeted program may be subject to two types of errors; there may be poor people who are missed by the program (Type I error), and non-poor people who may benefit from it (Type II error).[27] There is a trade-off between the two types of errors that can operate in two ways. Targeting can be "tightened" to reduce the extent of Type II errors, but the cost of the extra precision may exceed the savings achieved by not distributing the benefit to non-target families. Alternatively, the program may be expanded to reach more poor families and thus reduce the extent of Type I errors, but the Type II errors will probably increase as a result.

Analogously, indicators may be seen as subject to the same errors and tradeoffs. Some measures, such as the real per capita income of households below the poverty line, are well targeted on the group of interest, but are unlikely to be readily available and will be costly to collect. Other measures that are available -- such as agricultural value added deflated by the consumer price index of the poor -- are subject to both Type I and II errors. In this case, Type II errors can be reduced by focusing on crops grown by the poor, but Type I errors may rise in consequence.

The exact tradeoff that is made should depend on country and project-specific circumstances. For example, in many countries (such as countries with high literacy rates), non-participation in primary education is almost entirely confined to the poor, so that improvements in either of these indicators will be of benefit almost entirely to the poor (in other words, there are few Type II errors). However, if large numbers of the poor are literate, then the literacy measure does suffer from Type I errors. In this example, an indirect measure may suffice because it is very close to being a direct one -- it is a good proxy for (in other words, highly correlated to) the well-being of the poor. However, as we illustrate below, what is and is not a good poverty correlate cannot be taken for granted as this may vary from country to country. Furthermore, ultimately it is the overall distribution of the benefits of a policy that is important, not just the extent to which they are concentrated on the poor since the latter excludes the possible costs of targeting and externalities such as effects on the non-poor.

Beneficiary tracking versus Population monitoring. A related, but not identical, issue is that of beneficiary tracking versus population monitoring. Beneficiary tracking involves the collection of indicators only for the beneficiaries of the project, whereas in population monitoring, the indicators are collected for the whole population of the project area.[28] One factor affecting the choice between the two is the extent of Type II errors involved in beneficiary tracking compared to the cost of population monitoring. There may be projects for which the beneficiaries are not clearly defined or are difficult to track, or there may be significant externalities from project activities, and in these cases, population

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[26]See "Indonesia: Public Expenditures, Prices and the Poor", Report 11293-IND, 1993.

[27]Cornia and Stewart (1992) call Type I and II errors F and E mistakes respectively (Giovanni Andrea Cornia and Frances Stewart "Two Errors of Targeting", paper presented to World Bank Conference on Public Expenditures and the Poor: Incidence and Targeting, Washington D.C., June 17-19, 1992).

[28]Tracer studies are one form of beneficiary tracking. Beneficiary tracking is, however, a more general concept since it also encompasses current beneficiaries.

monitoring will be appropriate. In practice, any set of indicators will probably use both types of monitoring. In targeted poverty projects, beneficiary tracking is of use if both poor and non-poor beneficiaries can be identified. This identification will be influenced by whether the project is broadly or narrowly targeted.

Poverty measurement in broadly and narrowly targeted projects. Where projects contain a component that is narrowly targeted to the poor, beneficiary tracking may be more appropriate for measuring the project's impact on the poor. However, caution should be exercised in assuming that beneficiary tracking is always a reliable means of measuring the impact on the poor in narrowly targeted projects where targeting is at the level of the household or individual. If a project is successfully targeted to the poor, then beneficiary tracking will indeed measure the project's impact on the poor. However, an implicit assumption is being made that there is no leakage of benefits to the non-poor (in other words, that there are no Type II errors). This assumption is almost certainly incorrect (so that a Type II error in the project result in a Type II error in the poverty indicator) and so should be checked. Indeed, indicator monitoring may also provide the opportunity to determine leakage.

If a project is broadly targeted then, once again, the tradeoff between administrative cost and Type II errors arises in the decision about whether to undertake separate measurements for poor beneficiaries. For the project to have been classified as broadly targeted, there must have been some idea of the proportion of poor people among project beneficiaries, a figure that can serve as a guide in deciding whether to collect separate data for the poor. Nevertheless, even where this proportion is large (so separate collection appears to be unwarranted), the actual share of the poor among beneficiaries that is actually realized in practice should be measured at some stage of the project.

Identifying the poor. If it is decided to measure separate indicators for the poor in a project that is not narrowly targeted, then it is necessary to have a means of identifying the poor. Poverty assessments can be of great help in this regard. It is useful to note that several studies have thrown doubt on preconceived notions about who the poor are. For example:

- Chaudhuri and Ravallion (1994) ran simulations to explore the poverty reduction brought about by targeted step-wise ("poorest" first) transfers by various poverty criteria using cross-sectional data from three villages in dry-land areas of rural India. They found that there is little to choose between income and consumption, whereas land access and, particularly, food share actually perform badly.[29]

- Lanjouw and Stern (1991) classified villagers "anthropologically", on which grounds virtually all the landless were classified as poor, yet an examination of permanent income data revealed only 54 percent of them to be so.[30]

- Herrick (1983) documents that, in Costa Rica, the poor were not spatially concentrated within certain parts of urban areas (as was expected to be the case).[31]

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[29]See "Poverty Comparisons", Martin Ravallion, LSMS Paper 88, 1992.

[30]Ibid.

[31]See "Urban Poverty and Economic Development -- A Case Study of Costa Rica", Bruce Herrick and Borclay Hudson, London, Macmillan, 1981.

Female-headed households are often identified as being poor, yet Rosenhouse argues that the way in which the concept is applied (in other words, the recognized household head) does not capture the economic support base of the household, and so is not a reliable guide.[32]

Hence, the "poor" should be defined by actual data rather than by preconceived notions.

Using existing data systems. The first step in selecting a set of indicators is to review what data are currently available with a view to utilizing existing information systems. In countries for which poverty assessments have been carried out, poverty data should be readily available. In fact, over half of Bank borrowers now have poverty data in an acceptable form for the main purpose of distributional analysis -- this data can facilitate overall assessments and guide targeted interventions. In addition to considering what is available, it is also important to ascertain the form in which data are available. For example, data on some variables, for example, life expectancy, may be based on extrapolations with no further data collection, and the extrapolated values of the indicators should be used with caution. The data collected in many countries as part of the early warning system for food security concerns will often be useful in poverty monitoring.[33]

Existing data systems mostly collect data at the national (or, in large countries, regional) level, so that they will provide indicators that are suitable for adjustment lending but that may not be directly applicable to projects. However, local data can still be obtained from these systems in two ways. First, some national data may be usable at the local level, one example being price indices (although it may often be appropriate to re-weight the data to ensure that the consumption bundle of the target group is captured).[34] Second, it should be possible to extract regional data from the data collected for national purposes -- although the magnitude of the error term from what may be small samples should be borne in mind.

The use of existing data sources and channels of data collection is important both not to overburden the project implementing agency with data responsibilities and because the capacity and skills for data collection and analysis may not be available at the project level. The implementing agency of a project should form institutional links with statistical authorities to ensure that relevant data are obtained in a timely and appropriate manner.

The usefulness or purpose of national data also depends on two further, related conceptual issues: (i) direct versus indirect measurement; and (ii) beneficiary tracking versus population monitoring.

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[32]Sandra Rosenhouse "Identifying the Poor: is headship a useful concept?" LSMS Paper 58, 1989.

[33]See "Indicators and Data Collection Methods for Assessing Household Food Security", Timothy Frankenberger in "Household Food Security: Concepts, Indicators, Measurement", Maxwell and Frankenberger, Jointly sponsored by UNICEF and IFAD, UNICEF Programme Publication, New York.

[34]Spatial variations in price can, however, also be important. The updated poverty assessment for Indonesia reversed the official conclusion that the incidence of poverty was higher in urban than rural areas. It showed that the plausible urban/rural cost of living differential was only about 10 percent instead of the 55 percent urban premium implicit in the official poverty lines.

Indicators and the Two-Part Poverty Reduction Strategy

The Bank's two-part poverty reduction strategy is to promote broadly-based (labor-intensive) growth and to increase the access of the poor to social services in order to raise their living standards directly and to facilitate their participation in the growth process. Indicators may be classified as relating to either one part of the strategy of the other.

Incomes and welfare of the poor

Well-being is measured most directly by data on income or consumption. Consumption is usually preferred over income since income varies over time whereas consumption is smoothed over time. Consumption also captures people's access to publicly provided goods. *Current consumption* is, therefore, almost certainly a better guide to well-being than current income, and may also be a better guide to long-run living standards. However, consumption may also be a "noisy" indicator, because it will not be fully smoothed over the lifecycle and because the ability of the poor to smooth consumption is restricted by their limited access to credit.[35]

In comparing consumption levels, it is important to make some allowance for need, which is usually done by converting the data to "adult male equivalents". The use of equivalence scales is quite acceptable, but may be problematic in practice if the weights used are based on observed intra-household consumption patterns, since these patterns reflect inequalities in intra-household distribution as well as differences in need.

If income and/or consumption data are available, then poverty indices may also be constructed. The most common poverty indices are the headcount index, the poverty gap, and the squared poverty gap. Where poverty cannot be measured directly, it is possible to measure variables that are correlated with poverty.

Operational Directive 4.15 listed a number of variables correlated with income that can be used to track poverty; these are shown in Table 3. *Agricultural value added* is often only available after a considerable lag and will, in some countries, be subject to considerable Type II errors. A more appropriate measure may be *output of crops produced by the poor*. With regard to *price data*, its interpretation is complicated by whether or not the poor are net food suppliers or purchasers.

The indicators listed in Table 3 are important to the poor (to varying degrees depending on circumstance) and may be locally affected by projects. Agricultural projects should increase output and thereby demand for labor. Many recent projects emphasize the use of labor-intensive practices for infrastructure development, so that *unskilled wages* should rise. Consumer prices should register a fall as result of improved communications, suggesting that an indicator such as the price of key commodities in the project area relative to their price in the nearest urban center should be monitored. Measures of choice and availability may also be appropriate -- the most recent Country Economic Memorandum for Tanzania[36] gave a measure of the utility of rural households based on the number of brands of soap that were available from rural shops.

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[35]Ravallion, Op. cit.

[36]"Economic Report: Towards Sustainable Development in the 1990s", Report No. 9352-TA, 1991.

Table 3: Poverty indicators listed in Operational Directive on *Poverty Reduction*

Poverty lines

- Upper poverty line: headcount
- Lower poverty line: headcount

Short-term indicators

- Wage (unskilled, rural and urban)
- CPI (lower income or food only)
- Rural terms of trade

Social indicators

- Share of public expenditures for basic services in GDP
- Net primary enrollment or attendance (male and female)
- Under-five mortality
- Immunization
- Child malnutrition
- Female-to-male life expectancy
- Total fertility rate
- Maternal mortality

Source: World Bank Operational Directive 4.15: Poverty Reduction, 1992.

The *share of food in total expenditure* is often cited as a poverty correlate since, according to Engel's law, food share falls as income rises (that is, the income elasticity of demand for food is less than one). However, the indicator is problematic since food share will vary across households for reasons unrelated to poverty (for example, tastes) and because the elasticity is probably close to unity for the poor, so that the share does not fall as income rises. In the study mentioned above, Chaudhuri and Ravallion showed that targeting families with low food shares would actually have been a more efficient mechanism for reaching the poor.

Measures of physical well-being -- such as *nutritional status* or the *quality of beneficiary housing* -- are impact measures for projects in all sectors, since they should improve as a result both of direct (social sector) and of indirect (income generating) interventions. In general, these indicators are typically only used for social sector projects; even though income generating projects mention improving the "quality of life" among their benefits, they rarely quantify impact in this way. The main nutritional indicators are anthropometric measures (discussed below).

Access to social services. *Enrollments* are the main access variable used for education and, as previously discussed, where the initial enrollment is high, improvements are likely to benefit mainly the poor. For example, *Assistance Strategies to Reduce Poverty* (ASRP, 1991) cites the case of South Asia with a net primary enrollment ratio of 74 percent. The Indonesia poverty assessment showed the gross enrollment rates in both primary and junior secondary to be 100 percent in both cases for the top decile but 99 percent and 15 percent respectively for the bottom decile. Most countries also have marked regional variations in enrollment rates (for example, the Philippines), with lower enrollment in poorer regions. The regional enrollment rate may, therefore, be a fairly well targeted measure. However, in other countries or regions, the enrollment rate may be low (for example, Ethiopia with 38 percent; Bhutan with 26 percent; Mali with 24 percent; Pakistan with 37 percent; and Guinea with 37 percent)[37] so that improvements in the enrollment rate are most likely accounted for by non-poor groups.

The Uganda poverty assessment notes that official enrollment statistics give only an upper estimate of actual enrollments since there are incentives for over-reporting; reported rates in the poorer northern districts are as high as 80 percent but interviews with local authorities and parents suggest the true figure to be in the range of 30-40 percent. Enrollment data should be used with caution in arriving at judgements about the final impact -- it is possible for enrollments to shoot-up with the springing-up of new schools, but this may have little impact on the literacy level if the quality of the education provided is very poor. Enrollment rates are proxies for the number of school spaces available and little else. When the Bank lends for school construction, then school enrollments can indicate the success of the construction effort.

Other measures of access -- notably, *distance to facilities* -- are factors behind observed enrollment rates. Access may be measured in one of three ways: (i) facility per square kilometer; (ii) facility per person; or (iii) distance from facility. The simplest measure is the average distance to the nearest facility. Such information may be collected from household surveys. Alternatively, the figure may be estimated using existing information on population distribution and a map of facilities. The technique for performing this calculation is described in texts for applied statistics.

What matters most is of course not the distance to a facility but the *travel time*. The quality of life can be considerably improved by reducing travel time to important facilities, which may be achieved not only by providing new facilities but also by improving transportation. Access to social services is an important impact indicator for rural transportation projects.

The "quality" of services provided is just as important as "access" to them. Specific indicators can help to assess the quality of services. In the education sector, these include, for example, percentage of trained teachers, instructional time, pupil-teacher ratios, textbook-pupil ratios, student learning achievement, and school completion rates.[38]

In the context of SALs/SECALs, examples of relevant indicators are the percentage of public expenditures on basic social services as a share of total expenditures and/or of GDP, the expenditure breakdowns across and within sectors and subsectors, the breakdown between capital and current expenditures, and, within current expenditures, the breakdown between salaries and non-wage O&M.

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[37]Data are for 1990; Source - 1993 *World Development Report*.

[38]See Policy and Research Working Paper WPS 1208, 1993, by Nyagura and Riddell, page 7.

In the health sector, certain indicators that are sensitive to short-run changes can help to monitor performance during implementation, and are especially important in monitoring the impact of safety nets. Two examples (given in *ASRP*) are *immunization coverage* and *nutritional status*. Although immunization coverage is a process indicator, its link to impact is clear. Of nutritional status measures, *weight for height* is the most responsive to short-run changes.[39] As has been noted above, anthropometric measures may be subject to measurement error, so that some studies have recommended using process indicators.

Table 4 provides an indicative list of performance indicators. This list is, of course, not exhaustive. Country and project-specific circumstances will determine an appropriate set of indicators in a particular case

[39]See "Global Indicators of Nutritional Risk (II), Rae Galloway, HROWP 6, 1993.

Table 4: Indicative list of performance indicators

Indicator	Definition	Comment
INCOMES OF THE POOR		
Headcount index	Poverty index defined as the proportion of the population below the poverty line.	Although commonly used, this measure is of restricted value in describing poverty, since it is insensitive to how far below the poverty line the poor are. Like all poverty indices, its calculation requires detailed income or expenditure data. See also poverty gap index and squared poverty gap.
Poverty gap index	Poverty index calculated as the product of (i) the gap between the poverty line and the mean income of the poor expressed as a ratio to the poverty line and (ii) the headcount index.	This index captures the depth, but not the severity, of poverty. Like all poverty indices, it requires detailed income or expenditure data. See also headcount index and squared poverty gap.
Squared poverty gap	Poverty index calculated as for poverty gap but giving greater weight to those further below the poverty line.	Measures the severity of poverty. Like all poverty indices, requires detailed income or expenditure data. See also headcount index and poverty gap index.
Unskilled rural wages	Weekly wages of casual laborers without any other source of income.	Indicator should be collected in conjunction with an appropriate price deflator. See also consumer price index, rural terms of trade, and unskilled rural wage.

Indicator	Definition	Comment
Unskilled urban wages	Weekly wages of casual farm laborers with insufficient land to meet subsistence needs.	Indicator should be collected in conjunction with an appropriate price deflator. See also consumer price index, rural terms of trade, and unskilled urban wage.
(Unskilled) employment generation	Number of (unskilled) jobs created in association with specific activity (usually public works program) that would not have existed in absence of that activity.	See also labor intensity.
Unemployment	Number of persons in work force who are seeking work but not in paid employment or self-employed (may be expressed as percentage of total work force).	Unreliable indicator in low-income economies because of definitional problems. See also employment generation and labor intensity.
Labor intensity	Number of persons employed per unit of investment or output.	Used to monitor effectiveness of employment generation in public works. See also employment generation.
Consumer price index (lower income)	Index of consumer prices.	Index should be constructed that reflects the consumption bundle of the poor. In the absence of necessary information, the food price index may be used. See also rural terms of trade.
Price of agricultural commodities	Actual or index of price of commodities (specifically those produced by the poor).	See also agricultural output, agricultural value added, and rural terms of trade.

Indicator	Definition	Comment
Rural terms of trade	Wholesale price of foodgrain divided by wholesale prices of manufactured goods.	In general, improved rural terms of trade are beneficial for the rural poor. Urban poor and some rural poor (particularly those who are net food purchasers) may be worse off from improved rural terms of trade. See also consumer price index and unskilled rural and urban wage.
Food share	Percentage share of food is household consumption expenditure.	In general, this share will fall as income rises, but it is not necessarily an accurate targeting indicator (see text).
Agricultural output	Value of agricultural output.	May be restricted to crops produced by the poor. Proxy for agricultural value added or agricultural income.
Agricultural value added	Value added of agricultural sector.	Proxy for agricultural income. This indicator is usually only available with a substantial lag. See also agricultural output. Agricultural value added can capture labor market effects and multiplier effects not captured by the agricultural output of the poor.
ACCESS TO SOCIAL SERVICES		
Public expenditure on basic social services	Percentage share of primary education and health expenditures in GDP.	---
Travel time to facilities	Time taken to reach specified facility (for example, health center) by usual mode of transport.	---

Indicator	Definition	Comment
HEALTH		
Access to health care	Percentage of population that can reach local health care services by usual means of transportation in no more than one hour.	See also population per physician and population per nurse.
Child mortality rate	Number of deaths per 1,000 in specified age range (usually 1 to 4 or 1 to 5).	---
Calorie intake	Calorie intake per person per day.	---
Contraceptive prevalence rate	Percentage of women of childbearing age using modern contraceptive methods.	A process indicator that can act as a proxy for impact on total fertility rate. See also fertility rate.
Immunization status (or rate)	Percent of relevant age group immunized against specified disease.	Immunization is highly correlated with incidence, and so may be used as a proxy.
(Total) fertility rate	Average number of children born alive to a woman in her lifetime, if she were to bear at the prevailing age-specific fertility rates.	Factors leading to lower fertility (specifically, age of mother and length of previous birth interval) are positively associated with reduced child mortality. See also contraceptive prevalence rate.
Maternal mortality rate	Number of female deaths during childbirth per 100,000 live births.	---
Infant mortality rate (IMR)	Number of deaths of infants under one year of age per 1,000 life births in a given year.	IMR is widely used as the main overall health status indicator for a country. It should be sensitive to targeted interventions for maternal and child health in the short to medium term.

Indicator	Definition	Comment
Weight for height (wasting)	Wasting occurs when weight for height is less than two standard deviations below the mean for the reference population.	Proxy for short-run nutritional well-being. The "reference standards" are WHO/NCHS standards -- not locally generated standards. See also height for age and weight for age.
Weight for age (underweight)	Underweight is defined as a weight for age less than two standard deviations below the mean for the reference population.	A composite of weight for height and height for age. Good measure of nutritional status, especially in very small children. The "reference standards" are the WHO/NCHS standards -- not locally generated standards. See also height for age and weight for height.
Height for age (stunting)	Stunting occurs when height for age is less than two standard deviations below the mean for the reference population.	Proxy for long-run nutritional well-being. The "reference standards" are WHO/NCHS standards -- not locally generated standards. Children may maintain satisfactory physical growth by conserving energy by not playing. See also weight for height and weight for age.
Low birth weight (percent)	Infants born weighing less than 2,500 grams.	Proxy for maternal nutritional status and measure of infants at risk from malnutrition. Sensitive to percentage of premature births as well as maternal health, but a collectable and quick-responding indicator.
Life expectancy at birth	Expected lifespan of new born infant at prevailing mortality pattern.	The value of this variable is a composite of infant and child mortality with life expectancy at the age of five. The determinants of these component parts may differ, and changes in adult life expectancy occur only with a long lag, so it is not a good monitoring indicator.
Population per physician	Number of people per registered practitioner.	See also access to health services and population per nurse.

Indicator	Definition	Comment
Population per nurse	Number of people per nurse.	"Nurse" may include assistants and auxiliaries and paramedical personnel, such as traditional health attendants. This indicator is of more relevant to the poor than population per physician. See also access to health services and population per physician.
WATER		
Access to safe water	Percentage of households or individuals with reasonable access to safe water.	Definitions of both "access" and "safe" may vary among countries and over time and so need to be well-defined (currently "safe" includes treated surface waters or untreated but uncontaminated water from springs, sanitary wells, and protected boreholes). For urban areas, the standard for access is within 200 meters. For rural areas, it is that household members should not spend a disproportionate part of day fetching water.
HOUSING		
Persons per room	Number of regular inhabitants in a dwelling divided by number of rooms.	See also floor-area per person, which is the preferred indicator in the Housing Indicators study as it is more policy-sensitive.
Floor area per person	Usable living space per person (in square meters).	See also persons per room.
Rent to income ratio	The ratio of the median annual rent of a dwelling unit and the median annual household income of renters.	---

Indicator	Definition	Comment
EDUCATION		
Gross enrollment ratio (primary)	Number of students enrolled in primary school divided by the number of children in the age cohort for that level of education.	See also net enrollment ratio. Enrollment rates are proxies for the number of school spaces available; they can indicate the success of the construction effort and little else.
Net enrollment ratio (primary)	Number of students enrolled in primary school of primary school age divided by the number of children in the age cohort for that level of education.	In countries with relatively high enrolment rates (over 60 percent), the increase in the rate will mainly be to the benefit of the poor. See also gross enrollment rate.
Adult literacy rate	The proportion of adults (usually taken as those aged 15 and above) who are functionally literate.	Female literacy is an important determinant of fertility rates and infant and child health. However, the definition of literacy can vary widely across time and places. In most circumstances, this indicator is difficult to measure and slow to respond, but it can be used for specific target groups in project situations or in the context of national literacy programs.
School completion rate (primary)	Percentage of Grade 1 entrants remaining enrolled to the final grade of primary school.	---
Repetition rate	Repeaters at the primary level as percentage of total primary enrollment.	---
Transition rate from primary to secondary	Percentage of enrollment in the last grade of primary continuing to the first grade of general secondary school in the next year.	---

Indicator	Definition	Comment
Number of trained teachers	Percentage of teachers trained to appropriate national standard for level of teaching.	---
Pupil-teacher ratio	Average number of pupils per teacher.	
Textbook-student ratio	Average number of textbooks per student.	Can be disaggregated by grade level and subject e.g., number of second grade mathematics textbooks divided by number of second grade students.
Student learning achievement	Measures the learning that takes place in school using a particular testing system.	Testing systems differ from country to country.

Table 3 showed the list of poverty indicators recommended by Operational Directive 4.15 on Poverty Reduction. Since 1993, these indicators have been included in the Bank's *Social Indicators of Development* (though the spaces are mostly blank). The poverty assessments should enable many of the blanks to be filled, at least for the most recent period. In addition, poverty assessments should identify for the country concerned a handful of indicators of particular importance to the poor that can be monitored on a regular basis (annually or more frequently). These indicators will vary from country to country because both who the poor are and data availability differ across countries.

III. PERFORMANCE INDICATORS IN IDA-FINANCED POVERTY REDUCTION OPERATIONS, FISCAL 1988-93: A REVIEW

The formal classification of projects as PTIs and poverty-focused SALs/SECALs began only in fiscal 1992. An internal Bank study has, however, identified IDA investment and adjustment lending approved during the period fiscal 1988-91 that aimed directly at reducing poverty.[40] As shown in Table 5, this paper reviewed 178 IDA-financed targeted poverty projects in the period fiscal 1988-93.[41] These were analyzed with respect to the use of indicators in project monitoring. The paper also examined the 32 President's Reports for IDA-financed poverty-oriented SALs and SECALs that were approved during fiscal 1988-93[42].

A. Methodology

After analyzing a dozen randomly selected Staff Appraisal Reports (SARs), we decided that the following information should be collected from each SAR: (i) project data (project name, country, sector, amount, fiscal year, and whether the project was broadly or narrowly targeted (with social funds being marked separately); (ii) the reason for the project being classified as a PTI; (iii) the project's objectives; (iv) the project's description or activities[43]; (v) expected outcomes or benefits; (vi) poverty-related indicators, classified as input indicators, process indicators, and impact indicators; and (vii) any comments on the indicators. In the comments section, we recorded information on the use of baseline surveys, control groups, and beneficiary assessments, as well as the frequency of data collection, and whether targets were specified for the indicators. We also made a note of SARs that discussed studies for impact evaluation even if they did not specify actual indicators.

In practice, the distinction between poverty-related and non-poverty-related indicators was difficult to make. We recorded virtually all indicators listed with the following two exceptions. First, we did not note physical or financial management indicators, such as person months of consultancy delivered,

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[40]The pre-fiscal 1992 and post-fiscal 1992 figures for directly poverty reducing operations are not strictly comparable. The terms "targeted poverty projects" and "poverty-oriented SALs/SECALs" are used since this paper also covers the pre-1992 period, during which time the terms PTIs and poverty-focused SALs/SECALs had not been formally introduced in the Bank.

[41]Blend IDA-IBRD funded projects are also included.

[42]Includes poverty-oriented SALs approved during FY88-91, and poverty-focused SALs and SECALs for projects approved during FY92-93. The pre-fiscal 1992 and post-fiscal 1992 figures are not strictly comparable.

[43]We experimented with separating out "poverty-related objectives" and "poverty-related activities" from other objectives and activities respectively, but this separation proved difficult to apply in practice and was abandoned.

Table 5: Number of IDA-financed poverty reduction operations

Fiscal year	Number of targeted poverty projects	Number of poverty- oriented SALs/SECALs
1988	26	4
1989	19	5
1990	23	3
1991	31	4
1992	35	13
1993	44	3
Total	178	32

compliance with project procurement procedures, or accounting requirements, that were mentioned in virtually all SARs. Second, in cases where a very comprehensive list of indicators was given, we described them generically (for example, "number of farmers adopting new techniques" rather than spelling out each of the new techniques adopted by farmers).

The rationale for collecting this information for each project was to see how the project components were intended to meet the stated objectives, and what benefits each of the components was expected to generate in the realization of those objectives. Our view was that it would, accordingly, be possible to assess whether the chosen indicators corresponded to the mechanisms through which the project was intended to have an impact, or if they were measuring the wrong thing.

Each report was given a grading of 1, 2, or 3 according to the following criteria: "1" was assigned if no indicators were listed at all or if only input indicators were listed; "2" was assigned if input and process indicators were listed and/or the discussion included the use of impact indicators without an explicit listing of these indicators; and "3" was assigned if impact indicators were listed. If the view is taken that indicators should not be predetermined during the appraisal stage but should be developed by project management in consultation with beneficiaries once the project has begun, then a rating of "2" is not necessarily worse than a rating of "3".

A review was also made of IDA-financed poverty-oriented SALs and SECALs. Examination of 12 randomly selected President's Reports showed the use of poverty-related indicators to be non-existent in most cases, so that detailed data in all 32 President's Reports was deemed to be unnecessary. Our discussion below focuses on those operations that include such indicators.

B. Main Findings

Overview. Table 6 shows the grading for 178 targeted poverty projects tabulated by sector and fiscal year. Whether grade "2" or "3" is the better grade can be debated as discussed earlier. Grade "1" shows no listing of indicators at all or the listing of only input indicators with no discussion of process or impact indicators. For the period fiscal 1988-93, one third of SARs did not mention the use of indicators beyond routine project management. Of the remaining two-thirds that aimed at monitoring impact, roughly half explicitly listed impact indicators.

Table 6: Grading of SARs by Type of Indicators Used

	Number of projects			Percentage of projects			
	3	2	1	3	2	1	Total
Sector							
Agriculture	12	17	17	26	37	37	100
Education	9	14	14	24	38	38	100
PHN	21	28	10	36	47	17	100
WSS	4	3	1	50	38	13	100
Urban	4	4	14	18	18	64	100
Transport	1	4	1	17	67	17	100
Fiscal Year							
1988	1	8	9	6	44	50	100
1989	2	7	17	8	27	65	100
1990	2	10	11	9	43	48	100
1991	9	15	8	28	47	25	100
1992	13	16	6	37	46	17	100
1993	24	14	6	55	32	14	100
Total	51	70	57	29	39	32	100

The treatment of indicators is strongest in the water supply and sanitation sector, in the population, health and nutrition sector, and in the transport sector -- in each of these sectors only a small percentage of projects are graded as "1". Reporting or discussion of indicators is weakest in the urban sector and, is not strong in the education sector, and the agriculture and rural development sector.

There is an obvious difference between fiscal 1992-93 and the earlier years (fiscal 1988-91), with the percentage of projects classified as "1" having on average halved in the later period compared to the earlier one; by fiscal 1992-93, over 80 percent of SARs for IDA-financed targeted poverty projects had some discussion of indicators. Explicit mention of impact indicators in the SAR -- grade "3" -- has increased over the period fiscal 1990-93.

The proper use of indicators requires that a baseline survey be undertaken, a control group be maintained (or comparable national data collected), and targets set for the indicators. Just over a quarter of the SARs that we examined explicitly mentioned the use of a baseline survey and the same proportion gave targets for at least some of the indicators listed. Less than 10 percent of SARs discussed the use of a control group. However, the review also showed that coverage of these three areas has been stronger in more recent years.

Another general finding was a lack of clarity in the SARs in distinguishing among objectives, project activities, targets, and benefits. This lack of clarity is not a mere semantic issue, but has genuine operational implications. OD 13.05 is entirely in agreement with the Wapenhans Report that the ultimate objective of a project is "development impact on the ground". In the case of poverty reduction operations, development impact refers to improvements in living standards. We would go on to argue that quantifiable (and non-quantifiable) aspects of these increases in living standards are the project benefits, but in listing benefits, the nature of the improvements should be more sharply defined, and, in the case of quantifiable benefits, target values assigned. However, as noted above, this conception is not apparent in many SARs as objectives, description, and benefits are frequently confused. The identification of useful indicators is predicated upon a clear statement of project development objectives and identification of clearly defined benefits, but these are not clear in all SARs.

Table 7 lists the indicators which have been used in the SARs reviewed. A number of points emerge from an analysis of this list. In terms of the number of indicators used and their distribution by category (input, process, or output), the population, health, and nutrition sector stands out as the strongest sector. The education sector and the agriculture and rural development sector also have a fairly in-depth list reflecting the use of indicators to measure different aspects of project implementation.

Table 7: Indicators used in SARs for targeted poverty projects, 1988-93

Sector	Input	Process	Impact
Agriculture	Number of facilities and infrastructure constructed/rehabilitated; establishment of farms; input supply (amount and number of households); credit disbursed to farmers, repaid, in-arrears; breeding animals sold; number of pastures developed; research programs developed; construction of seed farms; private sector involvement; skill testing; recruitment and training of women; NGO involvement; seedling production and distribution; formation and support to activities of user groups; extension workers trained, materials distributed and attendance at extension meetings; research results disseminated, cost recovery per beneficiary; share of labor in investment costs; cost per beneficiary.	Adoption of better land use techniques, fertilizer, recommended practices; water run-off rate; performance of completed irrigation works; fertilizer consumption; status and quality of groundwater; on-farm investments; number of beneficiaries, women, smallholders, farmers' groups; land area covered; number of processing plants/non-farm enterprises operated; number of farmers trained; primary, secondary, and tertiary employment of each employed member; type of tenure on land; area cropped by type of crop; farmer satisfaction with advice received.	Yields by crop; income from land, livestock, and labor; household production; household expenditure; environmental measures (such as soil erosion and pastoral canopy); percentage of food-secure households; living standards (including quality of housing); mortality, fertility, and growth rate of livestock.

Sector	Input	Process	Impact
Education	Implementation of sectoral reforms; distribution and/or size of education budget; number of units constructed/rehabilitated; textbooks distributed; training undertaken; reduction in foreign and non-teaching staff; training evaluation; development and distribution of instructional material; number of students receiving scholarships; number of school inspectors; number of women in management positions.	Dropout rates; punctual attendance by pupils and teachers; cost of schooling to poor parents; enrollment rates by gender, rural/urban areas, and sector; distribution of free books to rural girls; unit costs; student teacher ratio; primary teacher attrition rate; textbooks and other materials provided; parental attitudes toward schools; student progression, repetition and attrition; children of school age not in school; textbook/pupil ratio; amount of vandalism; female participation rate.	Skills checklist; female literacy rates; female participation rate; scores on learning achievement tests; level of education for adults by sex.

/ctd.

Sector	Input	Process	Impact
Population, Health, and Nutrition	Number of facilities built and upgraded; persons trained; meetings and seminars held; distribution of information and other materials; percentage of health facilities delivering family planning services; undertake planned reforms; availability of drugs; level of cost recovery.	Health centers opened and facilities in use; births attended; number of pregnant women seen by health worker; women immunized against TB; recorded attended births; number of sterilizations; women of reproductive age sterilized against tetanus; number of pre-school children vaccinated, surveyed for nutritional status, identified to receive vitamin A; adults screened and treated for TB and malaria; screened for HIV infection; knowledge, attitude, and child-care practice; use of health services; contraceptive prevalence; prenatal coverage/consultation; standard of cleanliness; number of persons receiving planned treatments (such as TB drug therapy); immunization coverage rate; knowledge of risk factors among population; smoking prevalence among health workers; acute respiratory infection and diarrheal cases treated; low birth weight babies identified; antenatal registration and care; number of medically terminated pregnancies; distance to referral facilities; service emergency response times; insurance coverage; rate and character of service use; adoption of better health practices; rate of detection, cure and relapse.	Number of low birth weight babies; mortality rates (mother, child, infant, and by cause); disease incidence rates; fertility; weight for age (for malnutrition) and height for age; prevalence and reporting of AIDS; iron and vitamin levels, prevalence of stunting; number of underweight children; changes in beneficiary perception of opportunities open to them, intensity of infection.

Sector	Input	Process	Impact
Water Supply and Sanitation	Number of connections and standpipes; number of meters and number of meters working; number of facilities constructed or rehabilitated; training undertaken (including of partner organizations, for example, NGOs)	Percentage of population covered by water and sanitation facilities; latrines built; water sources sanitized; water production; volume billed; consumption by type of user (standpipe, private, commercial, government, and internal); availability of maintenance staff; female involvement in water committees; awareness created by health/sanitation messages; daily water supply period.	Percentage of the population served by water supply; beneficiary satisfaction with services provided; time spent in water collection; reduction in water related diseases; degree of satisfaction with services provided.
Urban	Execution of subprojects (requested and implemented); number of roads constructed or rehabilitated; staff training; supply of services to needy areas.	Person days of work created; jobs created for unskilled workers.	Employment generation; property/rental values.
Transport	Number of trailers locally produced.	Number of bicycles and trailers in use.	Erosion and water stagnation along the roads; road traffic volumes; agricultural production; commercial activities; access to markets; rural-urban links; access to social services; return on fixed assets; peak hour journey time.

Of the 32 poverty-oriented SALs/SECALs supported by IDA during fiscal 1988-93, the President's Reports for 11 loans included the use of indicators to track poverty issues. The indicators are summarized in Table 8 below. Four of the 11 loans included targets for some of the indicators, for example, for budgetary expenditures on education and health, especially in cases where expenditure reallocations were a condition of tranche release. It may be noted that, while some poverty-oriented SALs/SECALs do not include indicators or targets for performance monitoring, all adjustment loans specify indicators and targets for macroeconomic and/or sector performance.

Table 8: Performance indicators used to monitor social impact in poverty-oriented SALs/SECALs, Fiscal 1988-93

Input	Process	Impact
Public expenditure allocations on health, education, and agriculture; public expenditure allocations on food subsidies & other safety net projects; actual expenditures in health & education; expenditure allocations on primary level social services; recurrent social expenditures; non-wage operations and maintenance expenditures; investment credits for rainfed agriculture, basic education, and health; social sector cost recovery (using fee collection & operating cost data); spatial distribution of public expenditures in relation to the poor; agricultural prices; input status supply; urban/rural unskilled wage, producer & wholesale prices for rainfed crops	Number of primary teachers; number of primary students; primary wage bill; proportion of births attended by health personnel (urban/rural breakdown); number of school admissions by gender & primary rate; percentage of children going to health clinics suffering from severe malnutrition; contraceptive prevalence rate; primary student/teacher ratio; primary completion rate.	Nutritional level.

In Morocco, refinements in the system to monitor the income and living standards of low-income households was a tranche release condition, and the President's Report included a concise set of income and social indicators that would be tracked (See Box 3). In four African countries, the impact of adjustment reforms on the poor was to be tracked through the SDA program, but the President's Reports did not specify the indicators that would be used. Only the above loan for Morocco included income indicators (for example, unskilled wages and prices). In the India Social Sector Safety Net project (fiscal 1993), social indicators such as educational backwardness, maternal mortality, infant mortality, and incidence of poverty and endemic diseases were to be used in selecting districts for priority implementation of the program. It was not clear that these indicators would also be used for monitoring the impact of the accompanying adjustment reforms.

Only a small number of targeted poverty projects and poverty-oriented SALs/SECALs included specific poverty indicators such as the poverty indices, rural terms of trade, or unskilled wages (discussed in Part II). Moreover, very few indicators will be reported in a disaggregated form allowing separate identification of the poor. While the most common disaggregation is by gender, explicit attention will be paid in some recent fiscal 1993 PTIs to monitoring poverty-related issues, for example, by assessing the impact of service delivery in tribal areas (India Second Integrated Child Development Project), and examining the increases in workdays of unskilled employment created (Burkina Faso Food Security and Nutrition Project). In a few cases, some external factors that influence project outcomes such as the political situation and weather patterns were to be monitored (for example, in the Gambia Agricultural Services Project). Distance from facilities (for example, water, education, or health facilities) was identified earlier in this paper as a good measure of access (see Section II F), but has not been reported in any of the SARs or President's Reports we reviewed.

Box 3: Morocco: Improving the information base

The Morocco SAL II (fiscal 1992) supports the development of an information base to serve as the basis for strengthening poverty analysis, designing future programs, and tracking progress in poverty reduction. This includes preparing a poverty profile (describing income and social aspects of poverty by activity, location, and region), and developing a set of monitorable indicators. The Living Standards Measurement Survey provides the basic information on the present conditions of the poor. Long- and short-term changes in their conditions will be traced through: (a) simple, periodic surveys, including a core expenditure or income survey, conducted at intervals of about three years; and (b) regular collection and publication of indicators that track income and living conditions. The monitorable indicators are:

Indicators of government action

- Non-salary public recurrent expenditures per primary pupil
- Non-salary public recurrent expenditures on health services
- Proportion of births attended by health personnel (urban and rural)

Income and Social Indicators

- Male/female gross primary education enrollment rates and primary completion rates
- Number and percentage of children (0-5 years old) treated in health facilities who suffer from moderate to severe malnutrition
- Contraceptive prevalence rate
- Urban and rural unskilled wages (urban unskilled construction worker, rural agricultural laborer)
- Producer and wholesale prices for the main rainfed crops.

A system for gathering these indicators — some of which will require the collection of fresh data — will be developed during the loan. Investment credits on basic education and rainfed agriculture will be monitored against targets in the context of the second tranche release condition. Donors have shown interest in financing data improvements, and possible arrangements are under discussion. As a condition of second tranche release, the experience with collecting and monitoring the indicators will be reviewed and the system will be refined as necessary.

Source: President's Report No. P-5637, April 1992.

While the treatment of indicators in SARs has improved over time, it remains weak in certain respects. There is a strong correlation between this weak treatment of indicators and the lack of clearly defined project benefits.

IV. FINAL WORDS

The first requirement in selecting appropriate indicators is that the project's objectives and benefits should be clearly defined, although it is also conceivable that discussing the choice of indicators at an early stage of project preparation actually helps in defining and securing consensus on project objectives between the borrower and project management. The choice of indicators should follow logically from the intended benefits. Targets should be set for each indicator and for each collection period. The feasibility of refining the Bank's supervision rating system in order to take explicit account of progress on indicators should be examined.

It should not be forgotten that the point of designing and collecting indicators is to improve project performance. The data should not be collected for their own sake. Hence, any list of indicators must be parsimonious, and must clearly be related to need. Consultation among Bank staff, project management, and intended beneficiaries will help to ensure that the indicators that are collected will be of use.

Before any new data collection exercise is begun, all relevant existing data sources should be mined. The use of existing data sources and channels of data collection is important not only so as not to overburden the agency that is implementing the project with data responsibilities but also because the capacity and skills for data collection and analysis may not be available at the project level. The implementing agency should form institutional links with statistical authorities to ensure that relevant data are obtained in a timely and appropriate manner.

ANNEX: SUMMARY OF INDICATORS IN TARGETED POVERTY PROJECTS APPROVED DURING FISCAL 1988-93

NOTES

1. This annex summarizes indicators used in a sample of seven IDA-financed targeted poverty projects out of a total of 178 projects reviewed.

2. The sectors are coded thus: AR for Agriculture and Rural Development; EDN for Education; PHN for Population, Health, Nutrition; WSS for Water Supply and Sewerage; URB for Urban Development; and TR for Transport.

3. "Type" refers to whether the project is broadly targeted (BT) or narrowly targeted (NT). Social Funds are indicated by an SF.

4. In recording project objectives, we have tried to keep to the broad development objectives, though this was not always possible since they were often not clearly stated in the SARs.

5. "Indicators" refers to all indicators mentioned in the SAR except physical, financial, and other routine management and reporting indicators, which are not discussed in this Paper.

6. Indicators were identified as "input" indicators, "process" indicators, or "impact" indicators. Where the SAR did not contain indicators in any of these categories, this is shown by "not specified".

7. The SARs were graded as "1", "2", or "3" according to their treatment of indicators. "1" was assigned if no indicators at all were listed or if only input indicators were listed; "2" was assigned if input and process indicators were listed and/or impact indicators were discussed without an explicit listing of impact indicators; and "3" was assigned if impact indicators were listed. If the view is taken that indicators should *not* be predetermined during appraisal but should be developed by project management in consultation with beneficiaries once the project has begun, then a rating of "2" is not necessarily worse than a rating of "3".

Grade: 2

Country	Albania	Sector AR
Project	Rural Poverty Alleviation Pilot	Type NT, BT/SF
Amount	US$ 2.4 million	Fiscal year 1993

Reason for inclusion in PTI	Rehabilitation of rural infrastructure using labor-intensive techniques in poorer areas and credit for microenterprise development; poorest families given priority on infrastructure projects.
Objectives	Create employment for the rural population; repair basic rural infrastructure; promote private sector activities; provide feedback for developing a rural policy; and implement a new economic and financial approach at the local level.
Activities	Institutional development; rural infrastructure development; funding village credit funds; training officials to support these activities.
Benefits	Creation/rehabilitation of approximately 142 rural works; employment generation; boost to private sector activity through small loans; institutional development.
Indicators	
Input	Number of rural public works subprojects presented by the communes, appraised, and in execution; number of beneficiaries; amounts committed and disbursed; average cost per beneficiary; percentage of labor in the investment cost; number of village credit funds created; number and total amount of loans disbursed; rural studies carried out; training courses performed; outstanding loans; and repayment rate.
Process	Number of subprojects completed; number of subprojects evaluated *expost*; activities financed by credit funds.
Impact	Not specified.
Comments	Quarterly monitoring of indicators by district and sector. Rural studies will improve understanding of village and farm problems, monitor the overall program, and evaluate its impact.

Grade: 3

Country	Burkina Faso	Sector PHN
Project	Food Security & Nutrition	Type NT, BT
Amount	US$ 7.5 million	Fiscal year 1993

Reason for inclusion in PTI	Targets poor households in four of the most vulnerable provinces.
Objectives	Improve targeting of food security programs; diversify income sources of rural poor to improve food security and nutrition; improve nutritional status of children under the age of three.
Activities	Develop database for early warning systems; retarget existing public works programs towards poor households in drought-prone provinces; provide IEC; institutional support.
Benefits	Increased incomes; diversified income sources; reduced dependence on crop-production in drought-prone provinces; adoption of better child-feeding practices; improved infrastructure.
Indicators	
Input	Number of visits to beneficiary groups; frequency of contacts with agricultural extension workers; frequency of nutrition education campaigns; number of extension agents and NGOs trained in nutrition education.
Process	Number of eligible proposals per province (women's microprojects/labor-intensive works); frequency of publishing early warning bulletin.
Impact	Annual disposable income; average number of workdays of employment created (unskilled); knowledge of messages by beneficiaries 'modifying' child-feeding practices; change in nutritional status of beneficiaries' children as measured by weight/height; margin of error in predicting vulnerability to famine.
Comments	Some of these indicators to be collected during supervision missions (semi-annual). Baseline survey includes areas that are outside the project area and will, therefore, serve as a control group. Initial beneficiary assessments will provide quantifiable indices of nutritional status of children. Includes specific targets for indicators.

Grade: 3

Country	Burundi	Sector PHN
Project	Social Action (Twitezimbere)	Type BT NT/SF
Amount	US$ 10.4 million	Fiscal year 1993

Reason for inclusion in PTI	Mainly targeted at the poor especially women and unemployed/ underemployed groups.
Objectives	Improve living conditions of the population through employment generation and better social services/infrastructure.
Activities	Support income generating activities through training and technical assistance to help individuals and groups to launch small-scale productive activities; rehabilitation of basic infrastructure such as primary schools and basic health facilities, feeder roads; promotion of social services such as family planning, literacy programs; development of local NGOs through training and technical assistance; poverty monitoring through surveys to collect and analyze socio-economic data.
Benefits	Improved living conditions of the poor; enhanced access to essential social infrastructure; increased employment opportunities; expansion of existing local NGOs; creation of new local NGOs; improved government capacity to formulate social policy.
Indicators	
Input	Number of subprojects approved/under implementation/adhered to implementation schedule; collect/analyze household socio-economic data.
Process	Number of subprojects completed; employment created (man months); number of direct beneficiaries; percentage of women among direct beneficiaries; attitude toward the service; contributions for cost recovery.
Impact	For income generating subprojects: outputs produced by beneficiaries; revenues of businesses; change in quality of outputs. For economic infrastructure: costs of activities; changes in beneficiary perception of opportunities open to them. For social services: level of service use by different categories of population; nutritional situation in project area; literacy levels; service utilization rates.
Comments	Annual monitoring of indicators. Supervision missions will take account of views of beneficiaries and implementing agencies.

Grade: 1

Country	Chad	Sector EDN
Project	Basic Education V	Type BT
Amount	US$ 19.3 million	Fiscal year 1993

Reason for inclusion in PTI	Widens access to primary education, particularly in rural areas with special emphasis on increasing the enrollment of girls.
Objectives	Raising primary enrollment ratio from 59 percent in 1990 to 65 percent and the share of female enrollment from 31 percent to 30 percent, and reducing the average repetition rate from 30 percent to 20 percent. Secondary objective is to promote more efficient resource use in the education sector.
Activities	Increase public expenditures on primary education; increase efficiency in the use of primary school teachers and classrooms; promote girls' participation in primary education; encourage private initiatives in the provision of education.
Benefits	Additional enrollment capacity for about 117,000 additional pupils from 1994 to 1998; provision classrooms for 55,000 pupils largely in rural areas; increased primary enrollment ratio in rural areas from 51 percent to 59 percent and in urban areas from 91 percent to 95 percent; reduction in repetition rates from 30 percent to 20 percent; increased intake rates into Grade 1 of primary education from 64 percent in 1990 to 75 percent in 1998; reduction in number of school years invested for each student who reaches Grade six would decline from 18 to 9 by end of project period; improved availability of textbooks/teacher training/girls education; institutional development.
Indicators	Not specified.
Comments	Annual monitoring of indicators, which are identified in the "cadre logique" but not specified in the SAR. Mid-term review will cover repetition rates in primary schools; recruitment of teachers; teacher training; classroom construction; girl's education programs; promotion of private schooling.

Grade: 3

Country	China	Sector AR
Project	Sichuan Agricultural Development	Type BT
Amount	US$ 147.0 million	Fiscal year 1993

Reason for inclusion in PTI Project province is the most populous and yet one of the poorest provinces in China; within that the project focuses on four relatively poor prefectures.

Objectives Enhance agricultural productivity and raise incomes in poor and remote areas where farmers live.

Activities Expansion of irrigation; soil conservation; provision of complementary package of agricultural inputs; expansion in agro-processing facilities.

Benefits At full development, project expected to increase annual grain production by 440,000 tons; cash crops by 66,800 tons; 2.2 million m^3 of timber; 455,200 tons of fuelwood; 205,000 tons of mulberry leaves for production of 1,116 tons of cocoons; and 1.9 million head of goats/rabbits/geese. The agro-processing components will produce 20,400 tons of paper, 254 tons of angora wool, about 2,800 tons of processed meat, 40 tons of down, 7,000 pieces of hide and 500 tons of tannic acid. The project will benefit over 4 million people and create about 600,000 full-time jobs.

Indicators

Input Kilometers of canal/ditches built; number of research institutes built; number of seed companies/technical service centers constructed; number of technicians/agro-processors/engineers trained; use of labor and inputs.

Process Hectares of land tree cropped/biologically treated/planted average costs; number of papermills/rabbit processing units/cocoon processing units set up; cropping patterns; hectares added under irrigation.

Impact Farm size, yields, household net income.

Comments Baseline survey within and outside project area (control group) will record farm size, cropping patterns, use of labor and inputs, yield of major crops, household net income to measure the project's impact. Repeat surveys every 3 years (1993, 1995, 1998) on same sample plus any new households.

Grade: 1

Country	India	Sector AR
Project	West Bengal Forestry	Type BT
Amount	US$ 34.0 million	Fiscal year 1992

Reason for inclusion in PTI	Targets around 400,000 households of fringe forest dwellers and small farmers.
Objectives	Establish a sustainable forest protection system through active involvement of local communities to enhance forest productivity and conserve biodiversity.
Activities	Afforestation of degraded forests; surveys and demarcation of forest land, roads, small earthen dams, ponds and wells; improving forest research and plant propagation, train forestry staff and NGOs, improve wildlife management; fodder development in forest and non-forest areas.
Benefits	Bring 290,000 ha of degraded forest and uncultivated land under sustainable management benefitting about 400,000 households directly, with value of benefits amounting to 10-30% of annual household income, women and SC/ST would constitute 30% of beneficiaries, employment generation of 33.8 million person days almost wholly captured by poorest and landless households, processors and marketers of wood would benefit from increased supply of raw materials.
Indicators	Not specified.
Comments	Semi-annual progress reports to examine constraints and solutions. Detailed reporting requirements to be finalized during project start-up workshop.

Grade: 3

Country	Bolivia	Sector AR
Project	Agricultural Technology	Type BT
Amount	US$ 21.0 million	Fiscal year 1991

Reason for inclusion in PTI	Focuses on smallholders in highlands among whom poverty is concentrated and where farm productivity is very low.
Objectives	Improve overall efficiency of on-farm research, directly support technology development for highland agriculture, examine ways to improve extension services.
Activities	Coordinate research and extension, strengthen the national agricultural research agency, focus on developing technologies suitable for smallholder agriculture in highlands, support a study to improve extension.
Benefits	High production and productivity (value of increased production calculated for each crop).
Indicators	
Input	Number of persons attending training courses, enrollment in degree training programs, number of validation trials, number and attendance at extension training programs.
Process	Number of conclusive projects completed, cost reduction, and yield on validation plots.
Impact	Adoption of technology by producers (number of producers by program).
Comments	Annual monitoring. Includes targets.

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