3 Approach to Poverty Impact Analysis for Poverty Intervention Projects

For Poverty Intervention (including Core Poverty Intervention) projects, they should be subjected to an analysis specific to the poor beneficiaries in addition to the conventional efficiency analysis represented by the EIRR or aggregate NPV indicator. It would be ideal if a consistent yardstick could be applied to rank all interventions. Economic logic requires that such yardstick be based on the efficiency of delivering poverty reduction combined with a weighting system that incorporates contributions to all other relevant objectives, of which growth will be the most important. However, the practice of necessity must fall short of this theoretical ideal. Apart from the intrinsic problem of weighting different objectives there remains the methodological difficulty of comparing interventions among (i) those with monetized net

benefits, (ii) those with quantifiable but nonmonetized net benefits, and (iii) those with only beneficiary headcounts. Due to the diverse nature of the interventions at ADB's disposal it is impractical to attempt to develop a comprehensive methodology or a single criterion. Operational poverty impact analysis cannot be expected to be any more standardized than the existing practice of efficiency-based analysis. In addition there is a range of interventions including policy-based lending and institutional strengthening that are not easily amenable to rigorous quantitative methods, which is addressed in a separate study undertaken by the Economics and Development Resource Center (EDRC).

As early as in the late 1970s, ADB recognized the importance of bringing in beneficiary identification and distributional impacts in project analysis (ADB 1978). There has been a recent attempt to promote a rigorous approach to estimating poverty reduction impact of agricultural projects (Ali 1990). The current ADB Guidelines (Appendix 1) introduces the methodology. But the practice has not taken off on a regular basis until very recently. This Handbook expands upon the Guidelines. It sets out briefly the main steps involved in incorporating a poverty dimension into the economic analysis of projects, identifies some of the main technical difficulties, and suggests some rules of thumb as a practical means by which they can be overcome. The appendixes discuss more specialist issues and illustrate the approach by an analysis of case studies drawn from recent appraisals of ADB projects. Readers interested in theoretical aspects and experiences of other international agencies in this area are referred to Fujimura and Weiss (2000).

Economic analysis of projects uses a money-metric measure—i.e., as far as possible all project effects should be expressed in terms of economic benefits and costs expressed in monetary units. Hence it is logical that for the purposes of project analysis, poverty should be defined also in income/expenditure terms as opposed to headcount terms. This requires identifying a poverty line level of income/expenditure and defining all those who fall below this line as the poor and those whose income/expenditure is above it as the nonpoor. For the purposes of defining poverty for ADB appraisals, it is recommended that wherever possible the poverty line used should be a national one agreed between ADB and the DMC government concerned.

Nonetheless, there may be circumstances in which a national poverty line does not exist or where household income/expenditure data for project beneficiaries are not available. Here it is sometimes possible to derive approximate average income/expenditure data for aggregate groups of beneficiaries, for example, by inferring income from data on household assets,

such as hectares of land available for cultivation or adult family members available for casual wage employment. Lack of access to key basic need items —such as clean drinking water or primary education or to assets like types of dwelling or animals—could be used as a means of defining which groups fall into the category of the poor. The precise proxy to be applied would have to be determined by the circumstances of the case (see Appendix 3 for available survey data). The implication is not that this is a superior measure to income/expenditure but that if households had access to these assets they would use it to purchase the basic need concerned. As far as possible for consistency, the lack of access to the same basic need indicator—such as clean drinking water—should be used for projects of similar category. It will be the responsibility of project teams to establish how the poor affected by a project can be identified, and where an income/expenditure measure of poverty is not to be used, this omission should be justified.

The remaining part of the Handbook should be directly relevant for a wide range of projects at present financed by ADB. These are projects that are well-defined in the sense of having identifiable and quantifiable outputs produced by tangible inputs. Even projects for which outputs are quantifiable (for example, numbers of pupils, patients, houses, etc.) but cannot be readily valued in monetary terms can be incorporated into the framework set out below. However, projects outside of this category, where outputs are defined more broadly, such as institutional development in a policy reform context, would need a different approach under a separate study. Projects to promote small enterprise development, while potentially highly significant in terms of poverty reduction, also have benefits that are too diffused to make a meaningful ex-ante assessment. Financial analysis of such projects normally proceeds on the basis of calculations on representative projects, whose returns may be aggregated to form an economic return. However, this practice is too approximate for meaningful distribution analysis. Here it is probably far more effective to concentrate on setting clear priorities for financial intermediaries and ensuring that they operate within a well regulated financial environment. For ex-post evaluation, however, there can be a range of evaluation techniques for this category of projects (e.g., Khandker 1999).

Resource implications are important in operationalizing poverty impact analysis. The World Bank handbook (Baker 2000) for ex-post poverty impact evaluation studies indicates that the share of such studies in the total project cost can vary widely from 0.2 to 1.3 percent. It is likely that the analysis relevant for ex-ante project appraisal will not be able to match the time and resources required for such ex-post studies. Appendix 8 provides a preliminary indication

of resource requirements under project preparatory technical assistance. The next few years could be considered as a pilot test period for this Handbook. For distribution and poverty impact analyses to become meaningful, it is important that ESW is strengthened to cover poverty issues associated with each country and major sectors where project identifications are proposed. It is recommended that future ESW carry out a diagnostic analysis on issues that are discussed in Chapter 2 to provide poverty-focused contexts of project preparation.

Pre-PPTA Stage

If poverty focus is to be built successfully into project work it is obvious that it needs to be considered as early as possible in the project planning cycle. At the fact-finding stage of the project preparatory technical assistance (PPTA) the question must be raised as to whether or not a project should be considered as a Poverty Intervention. Technical nature of the project type may well constrain the extent of targetability. At this stage it is recommended

Box 1
Questions to be Addressed in Initial Social Assessment

Description of envisaged poverty impact
- Explain definition of poverty used (e.g., poverty line, or some basic needs indicator).
- Identify and estimate the coverage of the poor groups affected to the extent meaningful.
- Analyze causes of poverty in project area of influence to the extent meaningful.
- Explain the mechanism through which the poor are affected (e.g., as consumers through lower prices, as nonpaying users, as workers through new jobs, as producers using services of the project as inputs).

Assumptions
- Explain the critical assumptions required to achieve poverty impact (e.g., policies for targeting, uptake by the poor, willingness to pay by the poor, financial sustainability of project).

Risks
- Explain the risks of failure in achieving poverty objectives.
- Examine scope for leakage of benefits to nonpoor.
- Consider possibility of project encountering financial difficulties.
- Discuss preliminary measures available to reduce the risks.

that the questions described in Box 1 be addressed in the initial social assessment (ISA). It is recommended that the project's envisaged impact, the mechanism through which it will improve the position of the poor and the assumptions required for this to be achieved, be presented. Considering the typical time constraint for PPTA fact-finding missions, it is recommended that as much existing poverty data relevant to the envisaged project as possible be collected prior to the mission (Appendix 3).

PPTA Stage

At this stage, projects that are to be Poverty Interventions will require detailed socioeconomic assessments and detailed questions on poverty impact. This will require a more precise indication of the poverty impact of the project in terms of numbers of the poor affected and, wherever possible, estimates of their net benefits (expressed in money-metric terms) due to the project. The assessment should provide the basic data that can be used to extend project economic analysis to incorporate poverty impact analysis. There must be a discussion of ways of reaching the poor and ensuring that leakage of benefits to nonpoor is minimized (minimization of "type I error" relative to perfect targeting). Refined leakage minimization measures should be addressed at this stage. In the final project design, it should be ensured that credible instruments exist for targeting and monitoring poverty impacts.

A poverty focus requires that poverty concerns are fully incorporated at the project design stage. Where possible, alternative ways of implementing a project, for example in choice of technology, in location or in type of service, should be considered with a view to maximizing net benefits to the poor, subject to the overall constraint that where net benefits can be monetized the design selected must achieve a minimum acceptable EIRR of 12 percent. (Maintaining the current economic decision criteria is unquestionable in light of ADB's opportunity cost of development fund.) At the stage when project design and location are being decided, poverty issues should be considered wherever possible. The economic analysis appendix of the report and recommendation of the President (RRP) should discuss project (design) alternatives that are considered. While discussion of the alternatives has been the standard requirement for all projects, poverty reduction should now be the added dimension for consideration. Box 2 illustrates the type of questions

Box 2
Consideration of Project Alternatives and Poverty Reduction

- Explain the alternatives considered (e.g., location, type of service, technology, scale).
- Explain the poverty impact of the various alternatives; this can be quantitative (e.g., number of jobs) or qualitative where firm data are lacking (e.g., access to improved facilities).
- Justify the alternative selected on both economic efficiency (e.g., higher economic NPV) and poverty reduction grounds (e.g., cost per unit of net benefits received by poor.

to be addressed. The discussion can be brief provided a clear case can be made to justify the final design and packaging of the project.

Poverty impact analysis should be applied to the extent the analyst considers practicable in the economic analysis appendix of the RRP for all Poverty Interventions. It could also be applied to Other Interventions wherever data are available and the analyst finds it a useful tool in considering alternative projects or project designs. It should aim to calculate a poverty impact ratio (PIR), that is, the share of the poor in net benefits of the project (note, however, that the PIR in itself is not the target for maximization as cautioned in Chapter 5). Where, as for example in primary health or sanitation projects, benefits cannot be valued realistically in monetary terms, the second-best will be a headcount approach, that is, to estimate the poor as a proportion of total beneficiaries.

Steps for Poverty Impact Analysis

The extension of standard economic analysis of a project to poverty impact analysis requires first a distribution of project net benefits—setting out the effects of a project for the groups that gain or lose—and second, a poverty impact analysis in which the proportion of each group's gains or losses that goes to the poor is estimated. Hence a poverty impact analysis cannot be carried out without first undertaking a distribution analysis on a project (as can be seen from Step 5 in Box 3). Gains and losses arise first from the financial arrangement of a project. In addition they can arise from the distortions or externalities that are captured in an economic analysis. The economic NPV of a project, which measures its full contribution to national welfare, will be the sum of its financial effects and its external economic (economic minus

Box 3
Distribution and Poverty Impact Analysis

Distribution Analysis

Step 1. Set out the annual financial data on the project showing inflows (revenue and loan receipts) and outflows (investment, operating costs, loan interest and principal repayments, and tax both on profits and purchased inputs) from the perspective of the project owners. This is sometimes termed a return to equity calculation at constant prices. As this aspect of financial analysis is in fact a departure from current normal ADB practice, Appendix 4 illustrates what is involved in distribution analysis with reference to actual ADB projects. Appendix 5 illustrates what is required in the project financial analysis to obtain the data needed in distribution analysis. See also Appendix 23 of the ADB Guidelines (1997) for illustration of financial returns to equity. This part of distribution analysis can only be done fully after the project financing plan is finalized (since only then will the loan-equity split be known), but in practice its omission may not make a great deal of difference to poverty impact estimates.

Step 2. Discount each annual inflow and outflow to derive present values for each category and a net present value (NPV). Normally a 12 percent discount rate should be used for these calculations. The resulting NPV will be a financial NPV showing the income change for project owners. In addition there will be a gain to government from tax payments and where subsidized loans are provided, a loss to lenders.

Note: The choice of the 12 percent discount rate is for the purpose of analytical consistency. As the methodology applied in the Handbook is ultimately concerned with economic analysis, the 12 percent is the natural choice. However, obviously the financial opportunity cost of capital faced by the project entity (or various stakeholders) need not coincide with 12 percent. This issue is discussed in Fujimura and Weiss (2000). Financial viability test of the project should follow the usual practice (with the weighted average cost of capital, WACC, being the proxy for financial opportunity cost of capital). See ADB (2001a) for strictly financial aspects of project analysis.

Step 3. Identify the economic value to be used for each project input/output category. The ratio between this economic value and the financial price for actual transactions is the conversion factor (CF) for the item concerned. Normally for distribution analysis it is simpler to conduct economic appraisals in the domestic price numeraire (which means that income from the financial and economic calculations will then be in the same price units). If a world price numeraire is required for the economic calculations, to carry out a consistent distribution analysis, all financial data from steps 1 and 2 must be converted

financial) effects. The ADB Guidelines (Appendix 1) explain how the analysis works. The conceptual issues associated with these procedures are discussed in Fujimura and Weiss (2000). Rather than repeat these discussions

to world prices by multiplication by the standard conversion factor (SCF) (see Case 1 in Appendix 6). Nonetheless, it is recommended that the domestic price numeraire be used consistently.

Step 4. Express all project items in economic terms. This can be done by applying CFs to revalue the financial data from step 1. If CFs are taken as constant over the project's life, only the present value figures at step 2 need to be adjusted. For items for which there is no financial value at step 1 (for example, an environmental cost for which a project itself is not charged), their economic value, wherever estimated, should be entered directly in the economic benefit flows.

In practice, where project analyst did not foresee the need for distribution analysis and has done the conventional economic analysis first, as would be the case for most project preparations prior to the wider application of distribution analysis, the analyst could work backward to arrive at financial benefit and cost streams using conversion factors and transfer payments (see Case 2 in Appendix 6).

Step 5. Allocate any difference between financial and economic values to particular groups. These plus the changes for project owners and others at step 2 give the net benefits created by the project. The net benefits to different groups must sum to the economic NPV of the project, since this measures the total net benefits of the project. This can be seen as an identity: economic NPV = financial NPV + (economic NPV - financial NPV).

Note that where there is no financial revenue for the project agency, as in the case of road rehabilitation projects, net benefits still need to be distributed between different stakeholders (see Case 5 in Appendix 6).

Poverty Impact Analysis

A poverty focus requires that for each identifiable group affected by a project, the proportion of those who can be classified as poor be estimated.

Step 6. Estimate for each group affected by a project the proportion of net benefits that will go to those below the poverty line. Groups involved will vary between projects but will typically include consumers, workers, producers, government and the rest of the economy. For the government what is required is an estimate of the counterfactual; i.e., what proportion of government expenditure diverted from other uses by the project under consideration would have otherwise benefited the poor. Similarly if a project generates government income a proportion of this will create benefits for the poor, which will be indirectly caused by the project concerned (see Chapter 4).

Step 7. Finally, sum all net benefits going to the poor and divide by the total net benefits (economic NPV). This result is termed the poverty impact ratio (PIR).

here the basic steps required to carry out these analyses are set out in summary form (Box 3). Appendix 4 illustrates actual distribution analyses of ADB projects. Appendix 5 shows how a financial analysis desirable from a distribution perspective can be structured. Appendix 6 illustrates poverty impact calculations, based on materials from recent ADB project appraisals.