

# 4 Data Requirements

**A** though the methodology for distribution and, by extension, poverty impact analysis has been around for more than two decades (see Fujimura and Weiss 2000), there remains a fair amount of data problems in application. Of the parameters to be estimated in Step 6 of the analysis (Box 3), two are the most fundamental. One is benefit incidence—the extent to which it is possible to distinguish between the poor and nonpoor among direct project beneficiaries. The other is the problem of establishing the indirect impact on the poor of the gains/losses that accrue to the government and the rest of the economy.

## Benefit Incidence

The estimation of how the poor among direct beneficiaries are affected by a project can be complex. For certain types of projects with a direct poverty focus, the poor should be the sole direct beneficiaries. This is most obvious where there is geographic targeting, so a school or health clinic is located in areas in which only the poor reside. Similarly, there may be effective self-targeting, where only the poor take up the services of the project; for example a local clinic, where the better-off would use a hospital, or a public works scheme, where only the poor would seek employment at the wage offered. Means of effectively targeting the poor would have to be part of the initial project design.

On the other hand, there may be less clearcut cases. Provision of water or electricity to an area may involve the connection of households, some of which are above and some below the poverty line. The project socioeconomic assessment or similar field data collection during PPTA would have to identify the approximate distribution of users and how the project will affect these different groups. Box 4 gives an indicative terms of reference for such socioeconomic assessment from the poverty impact perspective.

It may be that for some projects regional or district level estimates of the headcount index of poverty may be available (e.g., poverty mapping discussed in Appendix 3; Bigman and Fofack 2001), which can be used to infer the degree of poverty in the population served by the project. In the

### Box 4

#### **Terms of Reference for Socioeconomic Assessment**

The assessment should

- identify the potential beneficiary (and/or loser) groups, separating those below the poverty line; in doing this, collect and use as much existing survey data as possible (Appendix 3);
- describe the current status of the target population (either in income/expenditure or more general socioeconomic characteristics);
- examine the need or demand for the project by the target population and where appropriate assess how much they are willing to pay or forego to receive its services; and
- generate information to allow community participation in the design of project activities and in its implementation.

absence of such data, however, alternatives will have to be found. A special household survey, as part of ADB's PPTA, is an option. However, given the difficulties in quantifying household income (e.g., where there is significant subsistence activity and multiple family jobs) or expenditure (e.g., recall bias) in one-time surveys, it may be appropriate and more cost-effective to use such a survey to establish specific household characteristics (such as lack of clean water, adequate shelter or access to primary education), which can be used to identify the existence of poverty. For example, a proportion of the families without access to clean water in an area can become the approximate headcount poverty measure. Such proxy indicators were found to be useful, for example, in the World Bank study on Poverty in Cambodia (World Bank 1999). Appendix 3 discusses how existing survey data can be utilized to assist poverty impact analysis prior to and during the PPTA.

An important part of any project plan will be to ensure that not only are target beneficiaries identified but also that there is a delivery mechanism that ensures that benefits accrue primarily to the target group. However, whether or not the delivery mechanism includes user charges can have a significant impact on the uptake of project services. Here consideration needs to be given to the balance between the project's financial sustainability and the poverty impact on the direct beneficiaries, since even if price elasticity of demand may be low it will not be zero (see ADB August 2000, for a summary of different approaches to demand elasticity estimation), while of course user charges can be pro-poor from a broad fiscal perspective. Another aspect of a socioeconomic assessment must establish how much the poor currently pays for use of services, where payment may be either direct in fees or charges to existing providers or indirect, for example in terms of travel costs or the opportunity cost of waiting time. In addition, it will be important to estimate the demand for new services at likely levels of charge. In many instances, estimates of actual payments and potential willingness to pay may need to be only approximate. However, in some cases (e.g., water and sanitation), willingness to pay for new connections may be an essential variable in both tariff setting and benefit valuation. Detailed estimates of willingness to pay are best left to specialist studies such as application of contingent valuation method (CVM) that would be additional to and complementary with socioeconomic assessments. [ADB (March 1996) provides appendixes on CVM application for environmental valuation. ADB (March 1999) provides an appendix on CVM in water supply projects. Choe et al. (1996a and 1996b) provides detailed applications of CVM. See also Anand and Perman (1999), Carson (2000), Singh et al. (1993) and Whittington et al. (1993).]

Where projects have effects that are spread widely, targeting may involve considerably more than simply location. For example, an irrigation project may in principle benefit farmers from a range of income strata. Ensuring that a significant number of beneficiaries are poor may require provision of a package of support services to poor farmers to allow them to gain the maximum crop increase from the availability of irrigation water. Seeds and fertilizer and the credit to purchase these will be required, as well as the information on their application. A road project would have inherent difficulty in associating its beneficiaries with geographical areas the road passes through. In such case, a special study such as origin/destination survey may be required in addition to the usual traffic projection. A socioeconomic assessment need not set out the exact mechanisms involved but it should draw attention to the issues.

## Government Net Benefit and Effects on the Rest of the Economy

Since governments will be major participants in ADB projects even where they have no direct equity commitment, a critical parameter in poverty impact analysis is the extent to which government expenditure and taxation accrue to the poor. In other words, to apply the approach rigorously we require an estimate of the benefit/tax incidence for the poor from marginal government expenditure and finance. This is particularly important where poverty-focused projects receive subsidies and therefore draw income from the government budget. However, this parameter is not available for any country and its derivation on a country-specific basis would need to be the subject of separate and extensive research. To avoid complications, marginal government expenditure/tax can be treated as distribution-neutral: additional unit of government net benefit induced by the project will be distributed back to the economy in a neutral way. Such distribution-neutral incidence of government net benefit on the poor will conceptually be represented **by the weighted average of the expenditure and tax incidence** on the poor, which will need to be estimated in country-specific studies. The analyst might make an upward or downward adjustment from the weighted average if she/he is convinced of a specific way in which project-induced income/financing will be distributed (somehow pinning down the fungible public fund), provided that it can be substantiated by convincing empirical evidence.

However, the weighted average incidence parameter is unlikely to be available in the current state of knowledge in, for example, public expenditure and finance reviews. Until such knowledge becomes available, further simplifying assumption (admittedly with no rigorous theoretical underpinning) can be applied: if the government spends additional funds created by a project or forgoes spending as funds are displaced by a project, these effects will not alter the distribution of income and the poor will share in the government net benefit in direct proportion to their share in the gross domestic product (GDP.) This simplification amounts to regarding the incidence of government net income as being equivalent to the effects of the rest of the economy on the poor (that can be referred to as *economy effects*). This is in line with the convention of project appraisal in which the shadow exchange rate factor (SERF) premium is treated as equivalent of any other form of government income. The assumption used is that the current state of income distribution is considered as the natural outcome of how an exogenously available extra unit of resources will be distributed in the economy. While this parameter is rarely known or documented, Appendix 7 shows how an approximate estimate may be derived from country-specific survey data and gives a list of preliminary calculations for DMCs where necessary data can be obtained. In most cases the income share of those below the poverty line will be low, and well below their headcount share in population. (For example, the estimate for Viet Nam is 12.6 percent while the headcount poverty incidence is 37.4 percent.) These can be used as the proxy for the unknown parameter for the economy effects, and if no alternatives are available, also for the incidence of government net income on the poor. Note, however, that this figure will only be available in financial terms while project net benefits will have to be in economic terms. Where country-specific poverty data/poverty lines are not available, it is proposed that **10 percent could be used as a rule of thumb**. This is roughly the upper bound for the share of the lowest quintile in income distribution for DMCs (e.g., *World Bank 2000f*, p. 282, Table 5).

## Box 5

**PIR Sensitivity to the Assumptions on Government Net Benefit Effect**

The assumption made about how the government net benefit would otherwise have been distributed and hence the degree to which it would have accrued to the poor can be significant in determining a project's poverty impact ratio (PIR). Where projects are net users of government income rather than generators of additional income for the government, the lower this parameter the higher will be a project's PIR. This can be illustrated with a simple numerical illustration. We assume a project ENPV is distributed as follows.

|              |       | Proportion to Poor |        | Proportion to Poor |        |
|--------------|-------|--------------------|--------|--------------------|--------|
|              |       | Case 1             | Case 2 | Case 1             | Case 2 |
| Farmers      | 200   | 0.8                | 0.8    | 160                | 160    |
| Consumers    | 50    | 0.1                | 0.1    | 5                  | 5      |
| Government   | (100) | 0.5                | 0.1    | (50)               | (10)   |
| ENPV         | 150   |                    |        |                    |        |
| Gain to Poor |       |                    |        | 115                | 155    |
| PIR          |       |                    |        | 0.77               | 1.03   |

In case 2 with the lower proportion of the poor in government net benefits (0.1 rather than 0.5) the PIR rises to above 1.0. On the other hand, projects which are net income generators for the government, for example, through a commercial pricing policy by public utility projects, will have a lower PIR, the lower the value assumed for the government net benefit parameter.

Where government income is only marginally affected by a project (e.g., due to cost recovery pricing and low distortions in the economy) the overall PIR will not be sensitive to this parameter. Nonetheless, when the assumption about the government income parameter is uncertain, a sensitivity analysis for PIR with respect to this parameter is recommended (see Case 5 in Appendix 6).