

Glossary

Average incremental economic cost (AIEC). The present value of investment and operation costs at economic prices, divided by the present value of the quantity of output. Costs and output are calculated from the difference between the without project and with project situations, and are discounted at the economic opportunity cost of capital (EOCK).

Benefit-cost ratio (BCR). The ratio of the present value of the economic benefits stream to the present value of the economic costs stream, each discounted at the economic opportunity cost of capital. The ratio should be greater than 1.0 for a project to be acceptable.

Constant prices. Future price values from which any expected change in the general price level is removed. When applied to all project costs and benefits over the life of the project, the resulting project statement is in constant prices. Expected significant changes in relative prices, that is, in expected price changes for an item compared with the expected change in the general price level, should also be incorporated in the valuation of costs and benefits at constant prices.

Conversion factor (CF). Ratio between the economic price value and the financial price value for a project output or input, which can be used to convert the constant price financial values of project benefits and costs to economic values. Conversion factors can also be applied for groups of typical items, such as petrochemicals or grains; and for the economy as a whole, as in the standard conversion factor or shadow exchange rate factor. For details of CF estimation, see *ADB Guidelines for the Economic Analysis of Projects* (1997).

Disability Adjusted Life Year (DALY). A composite health impact indicator that combines morbidity and mortality impacts. Its calculation requires two sets of weights: first by extent of disability and second, by age for premature death and disability effects. For details, see *ADB Handbook for the Economic Analysis of Health Sector Projects*, August 2000, or *World Development Report 1993*, World Bank.

Discount rate. A percentage rate representing the rate at which the value of equivalent benefits and costs decrease in the future compared to the present. The rate can be based on the alternative economic return in other uses given up by committing resources to a particular project, or on the preference for consumption benefits today rather than later. The discount rate is used to determine the present value of future benefit and cost streams.

Economic internal rate of return (EIRR). The rate of return that would be achieved on all project resource costs, where all benefits and costs are measured in economic prices. The EIRR is calculated as the rate of discount for which the present value of the net benefit stream becomes zero, or at which the present value of the benefit stream is equal to the present value of the cost stream. For a project to be acceptable the EIRR should be greater than the economic opportunity cost of capital.

Economic opportunity cost of capital. The real rate of return in economic prices on the marginal unit of investment in its best alternative use. This rate of return is estimated as the weighted average of the economic demand and supply price of capital, and therefore will be equal to the value of the marginal unit of investible funds to both investors and savers.

Equalizing discount rate (EDR). The discount rate at which the present values of two project alternatives are equal. It is the same as the internal rate of return on the incremental effects of undertaking an alternative with larger net costs earlier in the net benefit stream rather than an alternative with lower early net costs. The EDR is compared with the economic opportunity cost of capital to determine whether the alternative with larger net costs is worthwhile. Also referred to as the crossover discount rate, the discount rate above or below which the preferred alternative changes from one to another.

Factor intensity. It refers to the degree to which a certain production factor (e.g., labor, capital, land) is used in production and characterizes the type of production technology. For example, labor-intensive technology (e.g., garment industry) refers to a production process in which more labor inputs are required than capital inputs relative to capital-intensive technology (e.g., machinery industry).

Financial internal rate of return (FIRR). The rate of return that would be achieved on all project costs, where all costs are measured in financial prices and when benefits represent the financial revenues that would accrue to the main project participant. The FIRR is the rate of discount for which the present value of the net revenue stream becomes zero, or at which the present value of the revenue stream is equal to the present value of the cost stream. It should be compared with the financial opportunity cost of capital (FOCK), or the weighted average cost of capital (WACC), to assess the financial sustainability of a project.

Financial opportunity cost of capital. The opportunity cost of using investment resources at market prices in a project. This is often taken as the weighted average borrowing rate of capital used in the project

Financial sustainability. The assessment that a project will have sufficient funds to meet all its resource and financing obligations, whether these funds come from user charges or budget sources; will provide sufficient incentive to maintain the participation of all project participants; and will be able to respond to adverse changes in financial conditions.

Money-metric measure. The money-metric measure of welfare change forms a fundamental building block in applied welfare economics. While an individual's welfare change is derived from physical consumption of goods and services, it is necessary to make accounting by putting some money-metric units to the welfare change for any policy application. In a project context, economic prices of commodities, which deviate from observed market prices, represent the money-metric measure of welfare change when additional unit of project input or output is added or taken away from the economy. In a context of policy changes, there are other money-metric measures of welfare changes such as compensating variation (CV) and equivalent variation (EV). For more details, readers are referred to any graduate level microeconomic textbooks.

Net present value (NPV). The difference between the present value of the benefit stream and the present value of the cost stream for a project. The net present value calculated at ADB's discount rate should be greater than zero for a project to be acceptable.

Numeraire. The common yardstick that measures the objective being maximized. In project financial analysis this yardstick is the real income change for the project participants valued in domestic market prices. In project economic analysis, because the scope of the analysis differs, and because domestic market prices do not always reflect the scarcity value of project outputs and inputs, this yardstick is the real change in net national income for the project as a whole valued in economic prices. Generally, the real change in net national income can be measured at two different price levels. These are the domestic price level, where all economic prices are expressed in their equivalent domestic market price level values (the domestic price numeraire), and the world price level, where all economic prices are expressed at their equivalent world market price level values (the world price numeraire). As long as consistency is maintained in a particular calculation across all project effects, project decisions will not be affected by whether the domestic price level or the world price level is used to express the numeraire.

Opportunity cost. The benefit foregone from not using a good or resource in its best alternative use. Opportunity cost measured at economic prices is the appropriate value to use in project economic analysis for valuing nonincremental outputs and incremental inputs. For details, see ADB *Guidelines for the Economic Analysis of Projects* (1997).

Poverty impact ratio (PIR). The proportion of the total net benefits of a project (NPV) that accrues to the poor. (It is possible that its value exceeds one as in Case 2 in Appendix 6.)

Present value (PV). The value at present of an amount to be received or paid at some time in the future. It is determined by multiplying the future amount by a discount factor.

Real exchange rate. The price of foreign currency in terms of domestic currency where the rate of exchange is adjusted for the relative value of actual or expected domestic and international inflation.

Risk analysis. The analysis of project risks associated with the value of key project variables, and therefore the risk associated with the overall project result. Quantitative risk analysis considers the range of possible values for key variables, and the probability with which they may occur.

Simultaneous and random variation within these ranges leads to a combined probability that the project will be unacceptable. When deciding on a particular project or a portfolio of projects, decision makers may take into account not only the expected scale of project net benefits but also the risk that they will not be achieved.

Sensitivity analysis. The analysis of the possible effects of adverse changes on a project. Values of key variables are changed one at a time, or in combinations, to assess the extent to which the overall project result, measured by the economic net present value, would be affected. Where the project is shown to be sensitive to the value of a variable that is uncertain, that is, where relatively small and likely changes in a variable affect the overall project result, mitigating actions at the project, sector, or national level should be considered, or a pilot project implemented.

Shadow exchange rate (SER). The economic price of foreign currency used in the economic valuation of goods and services. The shadow exchange rate can be calculated as the weighted average of the demand price and the supply price for foreign exchange. Alternatively, it can be estimated as the ratio of the value of all goods in an economy at domestic market prices to the value of all goods in an economy at their border price equivalent values. Generally the shadow exchange rate is greater than the official exchange rate, indicating that domestic purchasers place a higher value on foreign currency resources than is given by the official exchange rate.

Shadow exchange rate factor (SERF). The ratio of the economic price of foreign currency to its market price. Alternatively, the ratio of the shadow to the official exchange rate. This factor will generally be greater than 1. For economic analysis using the domestic price numeraire, the SERF is applied to all outputs and inputs, including labor and land, that have been valued at border price equivalent values, with project effects measured at domestic market price values left unadjusted. The inverse of the standard conversion factor.

Shadow wage rate (SWR). The economic price of labor measured in the appropriate numeraire as the weighted average of its demand and supply price. For labor that is scarce, the SWR is likely to be equal to or greater than the project wage. For labor that is not scarce, the SWR is likely to be less than the project wage. Where labor markets for labor that is not scarce

are competitive, the SWR can be approximated by a market wage rate for casual unskilled labor in the relevant location, and adjusted to the appropriate numeraire.

Shadow wage rate factor (SWRF). The ratio of the shadow wage rate of a unit of a certain type of labor, measured in the appropriate numeraire, and the project wage for the same category of labor. Alternatively, the ratio of the economic and financial cost of labor. The SWRF can be used to convert the financial cost of labor into its economic cost.

Standard conversion factor (SCF). The ratio of the economic price value of all goods in an economy at their border price equivalent values to their domestic market price value. It represents the extent to which border price equivalent values, in general, are lower than domestic market price values. The SCF will generally be less than one. For economic analysis using the world price numeraire, it is applied to all project items valued at their domestic market price values to convert them to a border price equivalent value, while items valued at their border price equivalent value are left unadjusted. The SCF and SERF are the inverse of each other.

Transfer payment. A payment made without receiving any good or service in return. Transfer payments transfer command over resources from one party to another without reducing or increasing the amount of resources available as a whole. Taxes, duties, and subsidies are examples of items that, in some circumstances, may be considered to be transfer payments.

Weighted average cost of capital (WACC). Measured on after-tax income tax basis, WACC is determined by ascertaining the actual lending (or onlending) rates, together with the cost of equity contributed as a result of the project. To obtain the WACC in real terms, the inflation factor is to be deducted from the estimated cost of borrowing and equity capital.

Willingness to pay (WTP). The maximum amount consumers are prepared to pay for a good or service. WTP can be estimated as the total area under a demand curve. Changes in WTP can occur when the demand curve itself shifts because of changes in income or in the prices of substitute goods.

References

Ali, I. 1990. "An Approach to Estimating the Poverty Alleviation Impact of an Agricultural Project." EDRC Report Series No.47, Manila.

Anand, P.B. and R. Perman. 1999. "Preferences, Inequity and Entitlements: Some Issues from a CVM Study of Water Supply in Madras, India," *Journal of International Development* 11: 27-46.

Asian Development Bank. 1978. "Economic and Financial Appraisal of Bank-Assisted Projects." Occasional Papers No.11, Economic Office, Manila.

———. May 1994. *Handbook for Incorporation of Social Dimensions in Projects*. Manila: ADB.

———. March 1996. *Economic Evaluation of Environmental Impacts: A Workbook*. Office of Environment and Social Development. Manila: ADB.

———. February 1997. *Guidelines for the Economic Analysis of Projects*. Economic Development and Resource Center (EDRC). Manila: ADB.

———. March 1999. *Handbook for the Economic Analysis of Water Supply Projects*. EDRC. Manila: ADB.

———. June 1999. Project Economic Analysis and the Policy Context. Unpublished draft, EDRC. Manila: ADB.

———. October 1999. *Fighting Poverty in Asia and the Pacific: The Poverty Reduction Strategy of the Asian Development Bank*. Manila: ADB.

———. April 2000. *Advisory Notes on Poverty Analysis, High Level Forums, and Partnership Agreements*. Strategy and Policy Department (SPD), Manila: ADB.

———. August 2000. *Handbook for the Economic Analysis of Health Sector Projects*. EDRC, Manila: ADB.

———. November 2000. *Loan Classification System*. SPD, Manila: ADB.

———. 2001. "Integrating the Analysis of Risk into ADB's Economic Analysis of Projects." A draft methodological note. EDRC, Manila: ADB.

———. November 2002. Guidelines for the Financial Governance and Management of Investment Projects Financed by Asian Development Bank, EDRC, Manila: ADB.

Baker, J. ed. 2000. *Evaluating the Impact of Development Projects on Poverty: A Handbook for Practitioners*. World Bank: Washington, D.C. July 2001. Integrating the Analysis of Risk into ADB's Economic Analysis of Projects, a draft methodological note. EDRC, Manila: ADB.

Bigman, D. and H, Fofack, eds. 2001. *Geographical Targeting for Poverty Alleviation: Methodology and Applications*. Washington, D.C: World Bank.

Bolt, R. and M. Fujimura. October 2001. "Policy Based Lending and Poverty Reduction: An Introduction to Processes, Options, and Assessments." EDRC Working Paper No. 2, Manila: ADB.

Carson, R.T. 2000. "Contingent Valuation: A User's Guide," *Environmental Science and Technology* 34 (8):1413-1418.

Choe, K., D. Whittington and D.T. Lauria. 1996a. "The Economic Benefits of Surface Water Quality Improvements in Developing Countries: A Case Study of Davao, Philippines," *Land Economics* 72(4): 519-537.

Choe, K., R.C.G. Varley and H.U. Bijlani. 1996b. "Coping with Intermittent Water Supply: Problems and Prospects," paper prepared for the Regional Housing and Urban Development Office, New Delhi, Environmental and Health Project Activity Report No.26, Washington, D.C: USAID.

Consultative Group Meeting for Viet Nam. 1999. *Attacking Poverty: Vietnam Development Report, 2000*. Joint Report of the Government of Viet Nam-Donor-NGO Poverty Working Group.

Curry, Stephen and John Weiss. 2000. *Project Analysis in Developing Countries*. Macmillan, revised second edition.

Demombynes, Gabriel. January 2000. *A Manual for the Poverty and Inequality Mapper Module*, Revised Version, World Bank Development Research Group, Washington, D.C.

Dunlop, D. 1999. *Economic Analysis of Proposed ADB/MOH Rural Health Project*. PPTA consultant report, Manila: ADB.

Fujimura, M. and J. Weiss. October 2000, *Integration of Poverty Impact in Project Economic Analysis*. EDRC Methodology Series No.2. Manila: ADB.

Grosh, M. and P. Glewwe, eds. 2000. *Designing Household Survey Questionnaires for Developing Countries: Lessons from 15 Years of the Living Standard Measurement Study*. World Bank: Washington, D.C.

Hansen, S. May 2000. *Framework in Measuring Poverty Impact of Transport Projects*. Consultant draft final report to EDRC. Manila: ADB.

Henninger, N. April 1998. "Mapping and Geographic Analysis of Human Welfare and Poverty – Review and Assessment," World Resources Institute, Washington, D.C.

International Labour Organisation. 2000. *Child Labour Surveys* (Online). Available: www.ilo.org/public/englisg/standards/ipec/simpoc

Inter-American Development Bank. 2001. "Social Equity Enhancing (SEQ) and Poverty Targeted Investments (PTI)." (On-line). Available: http://www.iadb.org/sds/POV/site_3199_e.htm

Jenkins, G. and M. B. El-Hifnawi. 1993. *Economic Parameters for the Appraisal of Investment Projects: Bangladesh, Indonesia and the Philippines*. Consultant's report prepared for EDRC. Manila: ADB.

Kakwani, N. 2000, "Inequality and Wellbeing in the Philippines with focus on Mindanao," mimeo, EDRC. ADB: Manila.

Kakwani, N., B. Sisouphanhthong, P. Souksavath and B. Dark. 2001, "Poverty in Lao PDR," paper presented at *Asia and Pacific Forum on Poverty: Reforming Policies and Institutions for Poverty Reduction*, Manila, 5–9 February 2000.

Khandker, S. 1999. *Fighting Poverty with Microcredit: Experience in Bangladesh*. University Press: Dhaka.

Lanjouw, P. February 2001. "Geography of Poverty Alleviation in Pakistan: the Potential Contribution of a Poverty Map," note prepared for the Government of Pakistan, World Bank Development Research Group, Washington, D.C.

Londero, E. 1995. "Reflections on Estimating Distributional Effects," in C. Kirkpatrick and J. Weiss, eds., *Cost-Benefit Analysis and Project Appraisal in Developing Countries*. Edward Elgar, Cheltenham.

Londero, E. 1999. "Poverty Targeting Classifications and Distributional Effects," paper presented at the Development and Project Planning Centre, University of Bradford, 6–7 May 1999.

Macro International Inc. 2000. *Measure DHS+: Demographic and Health Surveys* (Online). Available: <http://www.measuredhs.com>

Minot, N. 2000. "Generating Disaggregated Poverty Maps: An Application to Vietnam," *World Development* 28(2): 319–331.

Murray, C.J.L., and A.D. Lopez, eds. 1996. *The Global Burden of Disease*. Boston, MA: Harvard School of Public Health.

Ozler, B. January 2000. "Poverty Maps: Construction and Use," PowerPoint presentation, World Bank Development Research Group, Washington, D.C.

Pernia, E.M. ed. 1994. *Urban Poverty in Asia: A Survey of Critical Issues*. Hong Kong, China: Oxford University Press for ADB.

Powers, T. 1989. "A Practical Application: The IDB Experience." *The Impact of Development Projects on Poverty*. Paris: OECD.

Quibria, M.G. ed. 1993. *Rural Poverty in Asia Priority Issues and Policy Options*. Hong Kong, China. Oxford University Press for ADB.

———. ed. 1994. *Rural Poverty in Developing Asia* (Country studies in two volumes). Hong Kong, China. Oxford University Press for ADB.

Singh, B., R. Ramasubban, R. Bhatla, J. Briscoe, C.C. Griffin, and C. Kim. 1993. "Rural Water Supply in Kerala, India: How to Emerge from a Low-Level Equilibrium Trap," *Water Resources Research* 29(7): 1931–1942.

United Nations Children's Fund (UNICEF). January 1995. *Monitoring Progress Toward the Goals of the World Summit for Children: A Practical Handbook for Multiple-Indicator Surveys*. Planning Office, Evaluation and Research Office, UNICEF, New York.

US Census Bureau. 2000. *Census Dates for Countries and Areas of Asia: 1945-2004* (Online). Available: www.census.gov/ipc/www/cendates/cenasia.html

van de Walle, D. 1996. *Assessing the Welfare Impacts of Public Spending*. Policy Research Working Paper No. 1670. The World Bank, Washington, D.C.

Weiss, J. 1996. "Project failure: The implications of a 25% rule," in C.Kirkpatrick and J.Weiss, eds. *Cost Benefit Analysis and Project Appraisal in Developing Countries*, Edward Elgar.

Whittington, D., D.T. Lauria, A.M. Wright, K. Choe, J.A. Hughes, and V. Swarna. 1993. "Household Demand for Improved Sanitation Services in Kumasi, Ghana: A Contingent Valuation Study," *Water Resources Research* 29(6): 1539–1560.

World Bank. 1998. *Handbook on Economic Analysis of Investment Operations*. Operational Core Services Network, Learning and Leadership Center, Washington, D.C.

_____. 1999. *Cambodia Poverty Assessment*, Report 19858-KH. Poverty Reduction and Economic Management Sector Unit and Human Development Sector Unit, Washington, D.C.

_____. August 1999. *Core Welfare Indicators Questionnaire Handbook*, World Bank Africa Operational Quality and Knowledge Services, Washington, D.C.

_____. 2000. *Core Welfare Indicators Questionnaire* (Online). Available: <http://www4.worldbank.org/afr/stats/cwiq.cfm>

———. 2000b. *Country Reports on Health, Nutrition, Population, and Poverty* (Online).

———. 2000c. *Living Standards Measurement Study of the World Bank* (Online). Available: <http://www.worldbank.org/html/prdph/lsms>

———. 2000d. Poverty Reduction Strategy Sourcebook: Technical Notes to the Public Spending Chapter of the World Bank Poverty Reduction Strategy Source Book (Online). Available: <http://www.worldbank.org/poverty/strategies/sourcons.htm>

———. 2000e. Socio-Economic Surveys: World Bank, Poverty Monitoring Database (Online). Available: www.worldbank.org/poverty/data/povmon.htm

———. 2000f. *World Development Report 2000/2001: Attacking Poverty*. Oxford University Press for the World Bank, Washington, DC. Available: <http://www.worldbank.org/poverty/health/data/index.htm>

———. 2001. "What is the Program on Targeted Interventions?" (Online). Available: <http://www.worldbank.org/poverty/wbactivities/pti/index.htm>