
Appendix A4

Glossary

GLOSSARY

Term	Meaning
Benefit Transfer	A practice used to estimate economic values for ecosystem services by transferring information available from studies already completed in one location or context to another. This can be done as a unit value transfer or a function transfer. <i>Source:</i> OECD
Benefit-Cost Ratio	The benefit-cost ratio (B/C ratio) is a discounted measure of project worth. It is the present value of the benefit stream divided by the present value of the cost stream. When the benefit-cost ratio is used, the selection criterion is to accept all independent projects with a benefit-cost ratio of one or greater when discounted at a suitable discount rate, most often the opportunity cost of capital. The benefit-cost ratio may give incorrect ranking among independent projects, and cannot be used for choosing among mutually exclusive alternatives. <i>Source:</i> Gittinger (cited by World Bank 1996)
Contingent valuation	The contingent valuation method is used in cases where markets for environmental goods and services either do not exist or are not well developed or where there are no alternative markets. This method was proposed and first used in developed countries for the valuation of public goods like access to parks, clean air or water, endangered species or unobstructed views. This method uses surveys to obtain information on the demand for public goods. People are generally asked what they are willing to pay for a benefit or what they are willing to accept to tolerate its loss. This method is sometimes the only way to estimate the benefits of common property resources for which no direct or related market exists, for example, scenic or ecological characteristics <i>Source:</i> Dixon, 1994b (cited by World Bank 1996)
Disability Adjusted Life Year (DALY)	A health gap measure that extends the concept of potential years of life lost due to premature death to include equivalent years of 'healthy' life lost by virtue of being in states of poor health or disability. The DALY combines in one measure the time lived with disability and the time lost due to premature mortality. <i>Source:</i> WHO
Discount rate	The discount rate is the rate used to calculate the net present value of a time stream of benefits and costs. The rate at which future amounts are discounted is called the discount rate. For example, if US\$100 accrues each year to an individual, the US\$100 next year is worth less than US\$100 in the present. This is because the individual prefers to receive the benefit now rather than later, or because US\$100 now can be invested at the rate of interest r , to become US\$100 $(1 + r)$ in one year's time. Hence the individual is indifferent between US\$100 now and the US\$100 $(1 + r)$ in one year's time. It follows that the individual is also indifferent between US\$100 * $(1 + r)$ now and US\$100 next year (dividing both sides of the previous option by $[1 + r]$). The sum US\$100 + US\$100 * $(1 + r)$ is the net present value and r is the discount rate. The procedure is widely used to appraise projects in which benefits and

GLOSSARY Cont'd.

Term	Meaning
	<p>costs are spread over a number of years. It permits a comparison of projects of different lives and different time profiles of benefits and costs. <i>Source:</i> Pearce, 1986b (cited by World Bank 1996)</p>
<p>Elasticity of Demand, Price</p>	<p>The price elasticity in demand the percentage change in quantity demanded divided by the percentage change in price. As demand curves normally slope downward, a price increase will usually lead to a demand reduction. The price elasticity of demand is usually negative. If the demand response is less in percentage terms than the price increase, the response is said to be "Inelastic"; if the demand response is greater in percentage terms than the price change, the response is said to be "elastic". If demand is inelastic to price changes, a price increase will increase total revenues while if demand is elastic, a price increase will decrease revenues. <i>Source:</i> OECD</p>
<p>Internal rate of return</p>	<p>The internal rate of return of an investment project is that discount rate or rate of interest that makes the stream of net returns associated with the project equal to a present value of zero. It is equivalent to the discount rate r that satisfies the following relationship:</p> $\sum_{t=1}^N \frac{B_t - C_t}{(1+r)^t} = 0$ <p>where B_t is the benefit stream, and C_t is the cost stream. The internal rate of return is then compared with the market rate of interest to determine whether or not a proposed project should be undertaken.</p> <p>Among the criteria used to determine the profitability of an investment project are the payback period and the net present value (NPV). Whereas the payback period criterion is a crude rule of thumb that ignores much of the time pattern of receipts, the NPV criterion is the most relevant rule for optimal investment behavior. The NPV rule and the internal rate of return rule lead to identical results in the two-period case and in the perpetuity case, but may lead to different results in the multiperiod case.(...) For the multiperiod case, the internal rate of return criterion is not generally correct. Furthermore, there may be multiple rates of return that will equate the present value of the project to zero. <i>Source:</i> Eatwell, Milgate, and Newman (cited in World Bank 1996)</p>
<p>Net present value (NPV)</p>	<p>The net present value is the sum that results when the discounted value of the expected costs of an investment is deducted from the discounted value of the expected benefits or the expected returns. That is, if the discount rate is r, the benefit in year 1 is B_1, the benefit in year 2 is B_2, and so on, and the cost in year 1 is C_1 and so on, then the NPV is given by:</p>

GLOSSARY Cont'd.

Term	Meaning
	$\sum_{t=1}^N \frac{B_t - C_t}{(1+r)^t}$ <p>where B_t is the benefits in year t, C_t is the costs in year t, r is the discount rate and N is the time horizon. Calculating the NPV requires determining the appropriate discount rate. A general rule is that if the NPV is positive the project in question may be worth undertaking. Therefore, when using the NPV, the selection criterion is to accept all independent projects with an NPV of zero or greater when discounted at a suitable discount rate, most often the opportunity cost of capital.(...). <i>Source:</i> Eatwell, Milgate, and Newman; Pearce, 1986b (cited in World Bank 1996)</p>
Purchasing Power Parity (PPP)	<p>Purchasing power parities (PPPs) are the rates of currency conversion that equalize the purchasing power of different currencies by eliminating the differences in price levels between countries. In their simplest form, PPPs are simply price relatives which show the ratio of the prices in national currencies of the same good or service in different countries. <i>Source:</i> OECD</p>
Sensitivity Analysis	<p>The economic analysis of projects is necessarily based on uncertain future events and imperfect data, and therefore calls for judgments about probabilities, whether made explicitly or not. A simple method of doing this is to use sensitivity analysis, that is, to determine how sensitive the net present value (or internal rate of return) is to variations in selected costs and benefits. Sensitivity analysis is an analytical technique to test systematically what happens to a project's earning capacity if events differ from the estimates made about them in planning. It is a means of dealing with uncertainty about future events and values. Sensitivity analysis is carried out by varying one element or a combination of elements and determining the effect of that change on the outcome, most often on the measure of project worth.(...) <i>Source:</i> Baum and Tolbert; Gittinger (cited in World Bank 1996)</p>
Willingness-to-Pay	<p>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 <i>Source:</i> ADB</p>