

GLOSSARY

Ability-to-pay (ATP). The affordability or the ability of the users to pay for the water services, as expressed by the ratio of the monthly household water consumption expenditure to the monthly household income.

Average incremental cost (AIC). The present value of investment and operation costs, divided by the present value of the quantity of output. Costs and output are calculated from the difference between the with- and without-project situations, and are discounted. It is expressed in the following formula:

$$\sum_{t=0}^n (C_t / (1+d)^t) / \sum_{t=0}^n (O_t / (1+d)^t)$$

where C_t is project investment and operation cost in year t ;

O_t is project output in year t ;

n is the project life in years;

and d is the discount rate.

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 consumed. Costs and output are calculated from the difference between the with- and without-project situations, and are *discounted at the economic opportunity cost of capital*.

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

Benefit stream. A series of benefit values extending over a period of time.

Border price. The unit price of a traded good at a country's border; that is, f.o.b. price for exports and c.i.f. price for imports. The border price is measured at the point of entry to a country or, for landlocked countries, at the railhead or trucking point.

Capital recovery factor. The factor expressed as: $[i(1+i)^n] / [(1+i)^n - 1]$ where i = the rate of interest and n = the number of years, is used to calculate the annual payment that will repay a loan of one currency unit in n years with compound interest on the unpaid balance. The factor permits calculating equal annual value (amortized value) of a loan (or initial cost) of a project.

Ceteris paribus assumption. Literally means "other things being equal"; usually used in economics to indicate that all other relevant variables, except the ones specified, are assumed not to change.

Constant prices. Price values from which any change (observed or expected) in the general price level is omitted. When applied to all project costs and benefits over the life of the project, the resulting project statement is in constant prices with value of money at the year when the project statement is made.

Consumer surplus. Savings to consumers arising from the difference between what they are willing to pay for an output and what they actually have to pay.

Contingency allowance in an estimate. An amount included in a project account to allow for adverse conditions that will add to base costs. Physical contingencies allow for physical events, such as adverse weather during construction, and are included in both the financial and economic benefit-cost analysis. Price contingencies allow for general inflation during the implementation period and are omitted from the financial and economic benefit-cost analyses since the analyses are done in constant prices.

Contingent Valuation Method (CVM). A direct method of nonmarket valuation in which consumers are asked directly their willingness to pay for a specific quantity or quality of goods or services such as water supply.

Conversion factor. Ratio between the economic price and the financial price for a project output or input, which can be used to convert the financial values of project benefits and costs to economic values. Conversion factors can also be applied for groups of typical items, such as water supply, transport, etc., and for the economy as a whole, as in the standard conversion factor.

Cost-effectiveness analysis (CEA). An analysis that seeks to find the best alternative activity, process, or intervention that minimizes resource use to achieve a desired result. Alternatively, where resources are constrained, analysis that seeks to identify the best alternative that maximizes results for a given application of resources. CEA is applied when project effects can be identified and quantified but not adequately valued, such as health benefit due to safe water and sanitation.

Cost recovery. The extent to which user charges for goods and services recover the full costs of providing such services, including a return on capital employed. Can be defined in terms of financial cost recovery using financial costs or economic cost recovery using economic costs.

Cost stream. A series of cost values extending over a period of time.

Cross-subsidization. Any subsidy that is received by a given group, usually poor people, is paid by higher-income group through higher prices.

Current prices. Price values that include the effects of general price inflation; that is, a past price value as actually observed and a future value or price as expected to occur. Current

prices are only used in financial analysis. In financial and economic benefit-cost analyses, constant prices are used.

Cut-off rate. The rate of return below which a project is considered unacceptable, often taken to be the opportunity cost of capital. The cut-off rate would be the minimum acceptable internal rate of return for a project. The cut-off rate is the FOCC in financial analysis and the EOCC in economic analysis.

Demand curve. A graphic representation of the inverse relationship between the price of water and the quantity of the water that consumers wish to purchase per period of time, *ceteris paribus*.

Demand for water. The various quantities of water which buyers are willing to purchase per period of time depending on the price of water charged, their income, time spent on collecting water, seasonal variation, etc.

Demand Management. Demand management refers to the controlling of water demand; hence, production. This may be effected in a number of ways: (i) leakage detection; (ii) reduction of illegal or unmetered consumption; and (iii) pricing policies. The demand management is sometimes effected through intermittent water supplies and restriction of the use of garden hoses, etc.

Demand price. The price at which purchasers are willing to buy a given amount of project output, or the price at which a project is willing to buy a given amount of a project input. For any good or service, the demand price is the market price received by the supplier plus consumption taxes and less consumption subsidies.

Depletion premium. A premium imposed on the economic cost of depletable resources, representing the loss to the national economy in the future because of using up the resource today. The premium is frequently estimated as the additional cost of an alternative supply of the resource, or a substitute, when the least cost source of supply has been depleted.

Depreciation. The anticipated reduction over time in the value of an asset that is brought about by physical use or obsolescence.

Discounting. The process of finding the present value of a future amount by multiplying the future amount by a discount factor.

Discount factor. How much 1 at a future date is worth today, as in the expression $1 / (1 + i)^n$ where i = the discount rate (interest rate) and n = the number of years. Generally, this expression is obtained in the form of a discount factor from a set of compounding and discounting tables, or can be calculated using a computer.

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

Distribution analysis. An analysis of the distribution of gains and losses as a result of the project between different project participants, users, government, etc. It also forms the basis for calculating the Poverty Impact Ratio.

Economic analysis. An analysis done in economic values. In general, economic analysis omits transfer payments and values all items at their value in use or their opportunity cost to the society. External costs and benefits are included in the economic analysis.

Economic benefit. A monetary measure of preference satisfaction or welfare improvement from a change in quantity or quality of a good or service. A person's welfare change is the maximum amount that a person would be willing to pay to obtain that improvement.

Economic benefit-cost analysis. The analysis for estimating the internal rate of return and NPV of the project costs and benefits measured in economic prices over a specified period of time.

Economic efficiency. An investment or intervention is economically efficient when it maximizes the value of output from the resources available or minimizes the value of inputs to meet an output.

Economic life. The period during which a fixed asset is capable of yielding services. It is that life of an asset beyond which it is uneconomic to use the asset and below which it is uneconomic to give up the asset. As distinguished from physical life, it is a period which is often longer, during which a fixed asset can continue to function notwithstanding its acquired obsolescence, inefficient operation, and high cost of maintenance or obsolete product.

Economic price. Price of goods and services which reflect their values or opportunity costs to the economy as a whole. This is also called the shadow price.

Economic resource. An economic resource is a scarce resource in the sense that it is limited in quantity related to the desire for the resource. Water as a scarce resource is an economic good.

Economic subsidy. The difference between the average tariff and the average incremental economic cost (AIEC) of water sold when the price per m³ of water charged to the users is below the economic costs.

Economies of scale. This occurs when the increasing size of production in the long run permits the per unit cost of production to fall, or each unit of output to be produced more cheaply.

Efficient water pricing. From an economic viewpoint, the efficiency-pricing rule in the long run is one that equalizes price to (long run) marginal costs (LRMC). As the LRMC is difficult to estimate, AIEC is used as an approximation.

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 (EOCC). The real rate of return in economic prices on the marginal unit of investment in its best alternative use. The value of the EOCC is difficult to calculate and the Bank uses 12 percent in most projects.

Economic viability. A project is economically viable if the economic internal rate of return (EIRR) is above the EOCC.

Effective demand for water. The quantity of water demanded of a given quality at a specified price based on the economic cost of water supply provision to ensure optimal use of the facility.

Elasticity (point) of demand for water. A measure of the responsiveness of quantity of water demanded (e.g., m³) to a small change in market price, defined by the formula:

$$\eta = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

Also called demand elasticity, price elasticity.

Environmental sustainability. The assessment that a project's outputs can be produced without permanent and unacceptable change in the natural environment on which it and other economic activities depend, over the life of the project.

Environmental sanitation. The concept generally refers to facilities and services regarding (i) human waste disposal; (ii) solid waste management; and (iii) stormwater drainage, sewerage, and wastewater treatment. Human waste disposal covers both on-site low-cost sanitation facilities (latrines, septic tanks, soakpits) and use of tankers for sludge removal and off-site disposal and treatment. Solid waste management and disposal is generally not a component

in Bank-assisted water supply and sanitation projects; but it is usually included in integrated urban development projects. Solid waste disposal facilities may comprise dumpsites, access roads, collection facilities, composing equipment, etc.

Environmental valuation. The estimation of the use and nonuse values of the environmental effects of a project. These valuations can be based on underlying damage functions for environmental stressors, identifying the extra physical costs of projects or the physical benefits of mitigatory actions. They can also be based on market behavior, which may reveal the value placed by different groups on avoiding environmental costs or enjoying environmental benefits.

Equalizing discount rate (EDR). The discount rate at which the present values of the costs 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 also early but lower net costs. The EDR is compared with the opportunity cost of capital to determine whether the alternative with larger net costs is worthwhile. Also referred to as the crossover discount rate, it is also the discount rate above or below which the preferred alternative changes from one to another.

Export and import parity prices. Estimated prices at the farmgate or project boundary, which are derived by adjusting the c.i.f. or f.o.b. prices by all the relevant charges between the farmgate and the project boundary and the point where the c.i.f. or f.o.b. is quoted.

External effects. Effects of an economic activity not included in the project statement from the point of view of the main project participants, and therefore not included in the financial costs and revenues that accrue to them. Externalities represent part of the difference between private costs and benefits, and social costs and benefits. As much as possible, externalities should be quantified and valued and included in the project statement for economic analysis.

Financial analysis. An analysis done using constant market prices of goods and services to arrive at the financial internal rate of return (FIRR). Financial analysis is also done for the entire project entity and includes the preparation of Income Statements, Fund or Cash Flow Statements and Balance Sheet Statements with current prices over a certain period.

Financial benefits. Refer to the financial revenues that would accrue to the main project participant.

Financial benefit-cost analysis. The analysis for estimating the FIRR that would be achieved on all project costs and benefits measured in financial prices over a specified period of time.

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 to assess the financial sustainability of a project.

Financial price. Market price of any good or service.

Financial subsidy. The difference between the average tariff and the average incremental financial cost (AIFC) of water sold when the price per m³ of water charged to the users is below the financial costs.

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

Financial opportunity cost of capital (FOCC). 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.

Foreign exchange premium. The proportion by which the official exchange rate overstates the real exchange rate to the economy or, in other words, the true opportunity cost of using a dollar.

Gross economic benefit. The total economic value of project output, measured as the sum of the economic value of nonincremental output that displaces other supplies and the economic value of incremental output that increases supplies.

Household. All the people who live under one roof and who make joint financial decisions.

Household size. The number of people who live under one roof and who make joint financial decisions.

Income elasticity of demand. A measure of the responsiveness of quantity demanded to a small change in income, defined by the formula:

$$\eta_Y = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in income}}$$

Incremental. Increase in quantity with the project.

Incremental benefit. An additional benefit received from a project over and above what would be received without project situation.

Incremental demand for water. An increase in existing consumption generated by the additional supply of water.

Incremental input. Input that is supplied from an increase in production of the input over and above what would be produced and supplied in the without-project situation.

Incremental output. Additional output produced by a project over and above what would be available and demanded in the without-project situation.

Inflation rate. The rate of increase per year in the general price level of an economy.

Intangible. In project analysis, refers to a cost or benefit that, although having value, cannot realistically be assessed in actual or approximate money terms. Intangible benefits include health, education, employment generation, etc. Intangible costs, on the other hand, are often the absence of the related benefits such as, disease, illiteracy, environmental degradation, etc.

Least-cost analysis. Analysis used to identify the least-cost option for meeting project demand for water by comparing the costs of technically feasible but mutually exclusive alternatives for supplying comparable quantity and quality of water. The analysis should be carried out using discounted values over the life of a project using the opportunity cost of capital, where possible, as the discount rate.

Least-cost alternative in economic analysis. An alternative that represents the least-cost addition to the optimal expansion plan for water supply in the project area. Costing is in economic, not in financial terms, and the discount rate to be used is the EOCC.

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 the discount rate should be greater than zero or positive in order for a project to be acceptable. When analyzing (mutually exclusive) alternatives, the alternative with the greatest net present value is preferred.

Nominal prices. See Current prices.

Nonincremental. Non-increase in quantity with the project.

Nonincremental benefit. Benefit arising out of giving up an existing supply of goods and services as a result of a project.

Nonincremental demand for water. Existing consumption of water wherein the additional (or new) supply of water displaces the existing water sources.

Nonincremental output. Output, produced by a project, that substitutes for supplies that would be available in the without-project situation.

Nonincremental input. Input that is supplied to a project that, in the without-project situation, would be produced and supplied to another project.

Non-revenue water. The water produced but not paid for.

Non-technical loss. The water produced but lost through water theft as in using unmetered taps or tampered meters, for instance. This increases the cost of supply and reduces sales revenue, but benefits consumers who do not pay.

Nontraded outputs and inputs. Goods and services, related with a project, that are not imported or exported by the country because: (i) by their nature they must be produced and sold within the domestic economy – for example, domestic transport and construction; (ii) of government policy that prohibits international trade; or (iii) there is no international market for the product given its quality or cost.

Numeraire. A unit of measure that makes it possible to find out the real change in net national income (i.e. ENPV). It can be measured at two different price levels. These are: the domestic price level, where all economic prices are expressed in their equivalent domestic price level (the domestic price numeraire); and the world price level, where all economic prices are expressed at their equivalent world price level (the world price numeraire).

Official exchange rate (OER). The rate, established by the monetary authorities of a country, at which domestic currency may be exchanged for foreign currency. Where there are no currency controls, the official exchange rate is taken to be the market rate.

Opportunity cost. The value of something foregone. The benefit foregone from not using a good or resource in its best alternative use. Measured at economic prices, it represents the appropriate value to use in project economic analysis.

Opportunity cost for labor. The opportunity cost of using labor input in a project rather than in its next best alternative use.

Opportunity cost for land. The opportunity cost of using land as input in a project rather than in its next best alternative use.

Opportunity cost for water. The opportunity cost of water as input in a project rather than in its next best alternative use.

Peak factor. The rate at which the demand for water reaches a maximum level during the day.

Present value. The value at present of an amount to be received or paid at some time in the future. Determined by multiplying the future amount by a discount factor.

Profit (or loss). The excess of revenue over cost or of cost over revenue.

Poor. Refers to household whose income falls below the country-specific poverty line.

Poverty impact ratio. The ratio of the net economic benefits accruing to the poor to the total net economic benefits of a project.

Productive efficiency. Achievement of a specific level of output or objective using the most cost-effective means. In economic analysis of a given water supply project, the analyst uses least-cost analysis of feasible project alternatives to test for productive efficiency.

Project alternatives. Technically feasible ways of achieving a project's objective. Project alternatives can be defined in terms of different possible locations, technologies, scales and timings. It can also refer to alternatives between physical investments, policy changes and capacity building activities. Mutually exclusive project alternatives are such that the selection of one option leads to the rejection of others.

Project cycle. A sequence of analytical phases through which a project passes. This includes identification, preparation, appraisal, implementation and evaluation of projects.

Project framework. A logical framework for a proposed project, which serves as a tool for preparing the project design, project monitoring and evaluation. It describes the goals, objectives, outputs, inputs and activities, verifiable indicators, means of verification and key risks and assumptions and project costs.

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 (NPV, IRR) 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.

Sensitivity indicator. The ratio of the percentage change in NPV to the percentage change in a selected variable. A high value for the indicator indicates project sensitivity to the variable.

Shadow exchange rate. 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. In general, greater than 1. The inverse of the SCF.

Shadow price. The price of goods and services from the point of view of a nation. The value used in economic analysis for a cost or benefit in a project when the market price is a poor estimate of their national opportunity costs.

Shadow wage rate (SWR). The economic price of labor measured in the appropriate numeraire (domestic or world price) 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.

Subsidy. In the provision of utility services, the difference between average user charges and the average incremental cost of supply. A subsidy can be estimated in economic terms using economic costs of supply, or in financial terms using financial costs of supply. The economic effects of a subsidy include the consequences of meeting them through generating funds elsewhere in the economy. Subsidies need explicit justification on efficiency grounds, or should be justified to ensure access to a selected number of basic goods.

Supply price. The price at which project inputs are available, or the price at which an alternative to the project is available. In the economic evaluation of projects, the supply price should be converted to economic values and transfer payments should be excluded.

Switching value. In sensitivity analysis, the percentage change in a variable for the project decision to change, that is, for the NPV to become zero or the IRR to fall to the cut-off rate.

Technical loss. The water produced which is lost through pipe leakages in the transmission and distribution networks, or in the storage. This increases the cost of supply and reduces sales revenue.

Traded inputs and outputs. Inputs and outputs of a project which go across the border of the country. These are the goods and services whose production or consumption affects a country's level of imports or exports. Project effects estimated in terms of traded goods and services can be measured directly through their border price equivalent value — the world price for the traded product for the country concerned, adjusted to the project location. Border prices for exported outputs can be adjusted to the project location by subtracting the cost of transport, distribution, handling and processing for export measured at economic prices. Border prices for imported inputs can be adjusted by adding such costs to the project site. Outputs that substitute for imports can be adjusted by the difference in transport, distribution and handling costs between the existing point of sale and the project site. Project inputs that reduce exports can be adjusted by the difference in domestic costs between the point of production and the project location. The border prices can be adjusted to the project location in either financial or economic terms. See also import parity price and export parity price.

Transactions costs. The costs, other than price, incurred in the process of exchanging goods and services. These include the costs of negotiating and enforcing contracts, and the costs of collecting charges for goods and services provided. The scale of economic and financial transactions costs can affect the market structure for a good.

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 most circumstances, may be considered to be transfer payments.

Unaccounted for Water (UFW). The difference between the water produced (and distributed) and the water sold, or the water produced but not sold. UFW may consist of technical losses and non-technical losses. The distinction between technical and non-technical losses is important for the economic analysis of water supply projects. Whereas both technical and non-technical losses increase the cost of supply and reduce sales revenue, non-technical losses benefit consumers who do not pay. Usually, UFW is expressed as a percentage of production, i.e.,

$$\text{UFW} = \frac{\text{Water Produced} - \text{Water Sold}}{\text{Water Produced}} \times 100\%$$

Unit of account. The currency used to express the economic value of project inputs and outputs. Generally, the currency of the country in which the project is located will be used as the unit of account. Occasionally, however, an international currency may also be used as the unit of account. Economic values using the domestic price numeraire can be expressed in either a domestic or international currency. Similarly, economic values using the world price numeraire can be expressed in either a domestic or international currency.

User fee. A charge levied upon users for the services rendered or goods supplied by a project.

Water management. Concerned with finding an appropriate balance between the costs of water supply and the benefits of water use. Water supply management includes the activities required to locate, develop and exploit new sources of water in a cost-effective way. Water demand management addresses the ways in which water is used and the various tools available to promote more desirable levels (decreases or increase in water use) and patterns of use.

Water Sector. All water uses, including water supply. Potable water supply is treated as a subsector. Water supply to irrigation, industry, hydropower, etc. is also treated as a subsector.

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. The total area under the demand curve represents total WTP.

WTP curve. A curve that represents the relationship between the quantity of water and the price of water that consumers are prepared to pay per period of time, *ceteris paribus*.

WTP studies. Household surveys in which members of a household are asked a series of structured questions designed to determine the maximum amount of money the household

is willing to pay for a good or service. Also termed “contingent valuation” studies because the respondent is asked about what he or she would do in a hypothetical (or contingent) situation.

With- and without-project. The future situations with and without a proposed water supply project. In project analysis, the relevant comparison is the net benefit with the project compared with the net benefit without the project. This is distinguished from a “before- and after-” project comparison because even without the project, the net benefit in the project area may change.

World price. The price at which goods and services are available on the international market. The world price for the country is the border price, the price in foreign exchange paid for imports. It is the c.i.f. value (inclusive of cost, insurance and freight) at the port, railhead or trucking point or the f.o.b. value (price in foreign exchange received for exports at the port, railhead, or trucking point).

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 Rawalpindi (Pakistan) Urban Water Supply and Sanitation Project
 Thai Nguyen City (Viet Nam) Provincial Towns Water Supply and Sanitation Project
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ABBREVIATIONS

ADB	-	Asian Development Bank
AES	-	Average economic subsidy
AFS	-	Average financial subsidy
AIC	-	Average incremental cost
AIEB	-	Average incremental economic benefit
AIEC	-	Average incremental economic cost
AIFB	-	Average incremental financial benefit
AIFC	-	Average incremental financial cost
ATP	-	Ability to pay
avg	-	Average
BME	-	Benefit monitoring and evaluation system
CEA	-	Cost effectiveness analysis
CF	-	Conversion factor
c.i.f.	-	Cost, insurance and freight
con	-	Connection
CVM	-	Contingent valuation method
d	-	Day
DMC	-	Developing member county
EBCA	-	Economic benefit-cost analysis
EIA	-	Environmental impact assessment
EIRR	-	Economic internal rate of return
ENPV	-	Economic net present value
EOCC	-	Economic opportunity cost of capital
FBCA	-	Financial benefit-cost analysis
FIRR	-	Financial internal rate of return
FNPV	-	Financial net present value
f.o.b.	-	Free on board
FOCC	-	Financial opportunity cost of capital
ha.	-	hectare
HH	-	Household
HC	-	Household connection
HLD	-	Health life days
HP	-	Hand pump
hr	-	hour
IRR	-	Internal rate of return
kwh	-	kilowatt hour
lcd	-	liters per capita per day

l/con/d	-	liters per connection per day
l/min	-	liters per minute
log	-	logarithm
LRMEC	-	Long-run marginal economic cost
m	-	meter
mm	-	millimeter
mn	-	million
m ³	-	cubic meter
Mm ³	-	million cubic meter
mo.	-	month
Ln	-	Natural logarithm
LCA	-	Least-cost analysis
MPW	-	Ministry of Public Works
NA	-	Not available/not applicable
NEB	-	Net economic benefits
NFB	-	Net financial benefits
ND	-	Not determined
NGO	-	Non-governmental organization
No.	-	Number
NPV	-	Net present value
NRW	-	Non-revenue water
NTL	-	Non-technical losses
O&M	-	Operation & maintenance
OCW	-	Opportunity cost of water
OER	-	Official exchange rate
Para.	-	Paragraph
PFW	-	Project Framework
PIR	-	Poverty impact ratio
PPTA	-	Project preparatory technical assistance
PT	-	Public tap
PV	-	Present value
RCS	-	Resource cost savings
Rp	-	Rupiah (Indian currency)
Re/Rs	-	Rupee/Rupees (Pakistan currency)
RWC	-	Rainwater collector
RETA	-	Regional Technical Assistance
RRP	-	Report and Recommendation to the President
RWSP	-	Rural Water Supply Project
RWSS	-	Rural Water Supply and Sanitation Project
SCF	-	Standard conversion factor
SER	-	Shadow exchange rate

SERF	-	Shadow exchange rate factor
SI	-	Sensitivity indicator
SV	-	Switching value
SWR	-	Shadow wage rate
SWRF	-	Shadow wage rate factor
TK	-	Taka (Bangladesh currency)
TL	-	Technical losses
TOR	-	Terms of reference
UFW	-	Unaccounted for water
UWSP	-	Urban Water Supply Project
VND	-	Viet Nam Dong
WACC	-	Weighted average cost of capital
WB-SAR	-	World Bank – Staff Appraisal Report
WHO	-	World Health Organization
WSP	-	Water supply project
WS&SP	-	Water supply and sanitation project
WTP	-	Willingness to pay
yr.	-	year

Notes

In this Handbook, "\$" refers to US dollars