3. Preparing and Appraising Investment Project

3.1. Investment Projects Overview

3.1.1. ADB appraises (reviews) investment projects to ensure that they are technically, financially, and economically viable. It considers: (i) national, sectoral, and local needs for the investment; (ii) economic and financial justifications for the proposed project; (iii) sustainability; (iv) the extent to which the project contributes to human and technological advancement; (v) good governance aspects; and (vi) whether ADB will be fulfilling its own responsibilities as set out in the ADB Charter.

3.1.2. Investment projects are managed and implemented by EAs and IAs. Together with the parts on Financial Management and Reporting and Auditing, this part aims to provide financial analysts with comprehensive guidance on preparing and appraising investment projects, based on the ADB Operations Manual and related guidance documents. In addition to this overview, this part has six sections:

3.2 Possible Investment Projects	This section discusses potential revenue and nonrevenue-earning projects.
3.3 Appraisal Checklists	General appraisal checklists are provided in the Knowledge Management section of these Guidelines. This section discusses the application of these checklists.
3.4 Forecasting	This section describes ADB's forecasting requirements. It focuses on the preparation of Project Cost Estimate Tables and financial projections.
3.5 Preparing Financial Benefit-Cost Analyses	ADB requires that projects be subjected to financial benefit-cost analyses. This section takes a step-by-step approach to describing how these analyses should be conducted.
3.6 Loan Covenants	The covenants in ADB loan agreements are designed to support the achievement of enterprise and project objectives. This section discusses the applicability of covenants.

3.7 ADB Reports	This section describes the purpose and contents of the various reports that are relevant to investment projects.

3.2. Possible Investment Projects

3.2.1 ADB maintains a 3-year rolling program of investment projects. This program forms a guide to the types of revenue-earning and nonrevenue-earning projects and sectors/subsectors that are likely to be involved.

3.2.2. The following lists of revenue-earning and nonrevenue-earning projects indicate the sectors and subsectors and the financial management expertise that the regional departments may require over time. The lists exclude Technical Assistance. The lists are updated as needed to reflect changes in the rolling program.

3.2.1. Possible Revenue-Earning Projects

3.2.1.1. The following indicative list of revenue-earning sectors, subsectors, and project activities is intended as a guide to the financial expertise that is likely to be needed during project identification, preparation, appraisal and supervision. The list indicates the sectoral and subsectoral experience likely to be needed from financial analysts.

- Sectors: Airports, Gas, Harbors, Housing Finance*, Nonbank Financial Institutions*, Plantations, Pumped Storage, Railways, Rural Savings and Credit Unions Development*, Sanitation, Waste Management, Wastewater Treatment, Water Conservancy, Water Supply and Sanitation.
- Subsectors: Buses, River Erosion Prevention, Toll Roads.
- Projects: Electric Power, Flood Management, Grain Productivity, Irrigation, Microfinance*, Road Transport, Rural Electrification, Rural Finance*, Small-and Medium-Scale Enterprise (SME) Development*, Urban Development (e.g., water supply), Urban SME Business Development*, Water Resources.

* Finance and banking sectors

3.2.2. Possible Nonrevenue-Earning Projects

3.2.2.1. The following list of possible nonrevenue-earning projects is intended as a guide to the expertise that is likely to be needed. Advice from financial analysts may be sought in relation to the cost-recovery aspects and efficiency improvement aspects of some of these projects.

- Sectors: Accountability Improvement, Economic Corridors Development, Ecosystem Management, Environmental Improvement, Environmental Protection (acid rain), Finance, Governance and Legal Reforms, Information Technology Development, Insurance and Pension Funds Development, Nutritional Improvement/Poverty Alleviation, Public Administration, Public Works Development Program, Rural Development, Rural Employment, Rural Employment and Income Generation, Rural Renewable Energy, Social Action Program, Social Security Reform, Soil Conservation, Women and Children Protection.
- Subsectors: Education Skills Transfer, Judicial and Legal Reform, Labor Retraining, Land Administration, Teacher Training, Women in Development.
- Projects: Agriculture Development, Basic Education, Civil Service Reform, Coastal Resources Management, Ecotourism, Health Services, Interregional System Improvements, Natural Resources Management, Nonformal Education, Post-Secondary Education, Rural Infrastructure, Rural Poverty Reduction, Rural Productivity Enhancement, Social Sector Development, Urban Development (e.g., drainage), Urban Environment.

3.3. Appraisal Checklists

3.3.1. The Knowledge Management section provides general checklists for the financial appraisal of a:

- Nonrevenue-earning project (see section 7.7),
- Revenue-earning project (see section 7.8).
- Private sector project (see section 7.9), and
- Financial Institution (FI) (see section 7.10).

3.3.2. These checklists are general. Care should be taken in their application. Every project will have different objectives, sectoral and institutional structure, management, and design and implementation approaches.

3.3.3. Revenue-earning projects may be in the public sector or in the private sector. For the purposes of these checklists, private sector projects are defined as projects financed by entrepreneurs in the form of private and public companies. ADB supports private sector projects with the intention of enhancing a country's economic performance by the production of goods and services, particularly for export, but also for local consumption.

3.3.4. Financial institutions range from large-scale apex institutions that service multiple FIs, to industrial and agricultural FIs and microfinance organizations. Particular consideration should be given to an FI's characteristics when applying the general checklist.

3.4. Forecasting

3.4.1. Introduction to Forecasting

3.4.1.1. ADB needs reasonable forecasts of expenses, revenues, cash flows, and other financial items that are necessary to ensure that projects are delivered in a timely and effective manner. But as forecasting is not an exact science, ADB requires its staff to work alongside their counterparts in borrowers' agencies during project identification, preparation and appraisal to ensure that all reasonable efforts have been made to develop meaningful forecasts. These forecasts should, ideally, be prepared by the borrower's agencies. However, where forecasts are prepared by ADB staff, or PPTA consultants, it is essential that the borrower's agencies take ownership of these forecasts.

3.4.1.2. ADB requires EAs to provide updated forecasts after loan signing and the start of project implementation. These will be updated forecasts-to-completion or, in the case of revenue-earning projects, updated forecasts for a specified period. The updated forecasts provide early warnings of project problems so that timely corrective actions can be taken. In the case of a revenue-earning project, the financial analyst will determine the period during which EAs will be required to provide updated forecasts. This requirement will be specified in the loan agreement. The exact period is at the discretion of the financial analyst. This will normally be from between 3 and 5 years following project completion (i.e., normally a total period of 10 ten years).

3.4.1.3. During project preparation and appraisal, staff should carefully examine project cost, revenue and cash flow estimates. The project officer is responsible for ensuring that these base costs are realistic. The financial analyst and the project engineer are responsible for examining the cost estimates in general. They are particularly responsible for ensuring that: (i) the items included in the base cost are realistic; and (ii) where items have not been included, this has been for sound technical, financial or economic reasons.

3.4.1.4. The remainder of this section discusses: (i) the use of the COSTAB model; (ii) the principal components of cost estimates and how these should be developed; (iii) physical, price contingencies, and risk contingencies; and (iv) disbursement profiles. The section concludes with outline of a typical project Cost Estimates table and Financing Plan.

3.4.2. Using the COSTAB Model

3.4.2.1. The COSTAB (Standard Project Cost Table) computer model can assist analysts to apply this section of the Guidelines. It can be used to generate cost tables,

financing plans, and disbursement tables. COSTAB can also compute physical and price contingencies, domestic and foreign interest charges, and financial charges during development (FCDD).

3.4.2.2. COSTAB system is available in the ADB website using this link: http://www.adb.org/Projects/costab.asp. The ADB Office of Information Systems and Technology (OIST) may assist in the software installation and provide user manuals, as necessary. Users may send e-mail to costab@adb.org for assistance.

3.4.3. Preparing Project Cost Estimates

3.4.3.1. A Project Cost Estimates Table, that includes all project cost elements, should be prepared at the PPTA stage. The Project Cost Estimates Table should be designed so that it provides (i) an understanding of the principal project cost components during appraisal, and (ii) useful information for project cost control purposes during implementation. The information provided by the Project Cost Estimate Table is considered at project appraisal and during implementation by the borrower, the EA, and ADB.

3.4.3.2. The Project Cost Estimates Table outline that is provided below is suitable for the main body of text in a Report and Recommendation of the President (RRP). Each line item can be broken down to provide additional details. The COSTAB software enables different levels of project cost detail to be presented to meet reporting needs (for instance, for the main text or the appendix of an RRP).

3.4.3.3. The outline includes all standard loan disbursement categories.

Std Code		Local Costs	% of Total	Foreign costs	% of Total	Total	% of Total
	COMPONENTS[a]						
03	Civil Works	0.00	0	0.00	0	0.00	0
06	Survey, Investigation, Design, and Mapping	0.00	0	0.00	0	0.00	
09	Research and Development (Extension and Demonstration)	0.00	0	0.00	0	0.00	
12	Institutional Development and Strengthening	0.00	0	0.00	0	0.00	
15	Equipment, Vehicles, and Furniture (Purchase and Maintenance)	0.00	0	0.00	0	0.00	0
18	Materials	0.00	0	0.00	0	0.00	
21	Consulting Services	0.00	0	0.00	0	0.00	0
24	Training and Fellowships	0.00	0	0.00	0	0.00	
27	Operation and Maintenance	0.00	0	0.00	0	0.00	
30	Financing of Nongovernment Organizations (NGOs)	0.00	0	0.00	0	0.00	
...	Implementation Assistance	0.00	0	0.00	0	0.00	0
...	Land	0.00	0	0.00	0	0.00	0
...	Capital Goods	0.00	0	0.00	0	0.00	0
...	Incremental Administrative Costs	0.00	0	0.00	0	0.00	0
...	Initial Working Capital	0.00	0	0.00	0	0.00	0
...	Taxes and Duties	0.00	0	0.00	0	0.00	0
	Base Costs as at ..*(date)*..	0.00	0	0.00	0	0.00	0
	Contingencies [a]						
87	Physical	0.00	0	0.00	0	0.00	0
84	Price	0.00	0	0.00	0	0.00	0
81	Other (Identify)	0.00	0	0.00	0	0.00	0
	Sub-Total	0.00	0	0.00	0	0.00	0
	Financing Charges During Development [a]						
66	Interest	0.00	0	0.00	0	0.00	0
69	Other	0.00	0	0.00	0	0.00	0
	Total Project Cost and Financing Required	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**

[a] Footnotes to be used as necessary, particularly for contingencies' explanations

3.4.3.4. ADB does not finance the costs of land, rights-of-way, and taxes and duties, even though these costs are included in the base costs of a project.

3.4.3.5. An EA will normally have designers (engineers, architects, agriculturalists, economists, etc). These designers will prepare the physical aspects and operational features of the project. They are also responsible for ascertaining project costs, economic benefits, and for designing the program's development and operations. These designers may be staff of the borrower (including the EA), foreign consultants, local consultants, or some combination of these three. Design costs may be met from a technical assistance loan, or from the borrowers' own resources. The design costs will normally be incurred prior to project implementation, but there will be circumstances where the final design work is ongoing during implementation and may form part of project costs.

3.4.3.6. The financial analyst's role may range from satisfying themselves at appraisal that the methods, data, and assumptions used to determine project costs are credible and justifiable, to assisting to assemble the data prepared by the designers to compile cost estimates for the Financing Plan.

3.4.3.7. The base project cost estimate represents the appraisal mission's (including the financial analyst's) best judgment of estimated project costs at a specified date, assuming that:

- the qualities and quantities of works, goods and services, and prices of inputs and outputs relevant to the project have been developed as accurately as possible, using wherever feasible, known factors which will not change during implementation, and
- the project is to be implemented precisely as planned.

3.4.3.8. These assumptions that support the base cost estimates are made to provide a firm basis of costs at one point in time, particularly to determine the total amount of required financing. The RRP should provide these assumptions.

3.4.3.1. Local Costs

3.4.3.1.1. The borrower is expected to cover local project costs since ADB normally finances the foreign exchange component. In special circumstances, ADB finances a portion of local costs (see OM H3: *Local Cost Financing and Cost Sharing*). For ADF-funded projects, the lending policies of the respective ADF replenishment provide a list of conditions that need to be met for projects to qualify for local cost financing.

3.4.3.1.2. The calculation of the amount of eligible local cost financing must reflect the requirement that ADB does not finance taxes. The amount of local taxes imposed on goods and services will vary within components and, when determining the estimated amounts of taxes, the financial analyst should also have regard to the need to provide a practical means of disbursing against local costs. This requirement means that the financial analyst should agree with the borrower and the appraisal team on the estimated amount of taxes (expressed as a percentage of total cost) likely to be levied by the government and included in a local cost component that is eligible for reimbursement.

3.4.3.1.3. Determining this percentage for goods and services should be relatively simple. For example, if value added tax (VAT) is levied at 15%, this percentage should be excluded from the estimated cost of the goods or services. This calculation may be complicated where the EA may be entitled to recover VAT from the yield of VAT levied on final products or services. In such cases, the analyst should take this factor into account.

3.4.3.1.4. Where ADB agrees to finance salaries and wages, these will likely include tax payments to government for income tax, health, social security, forms of unemployment insurance, and other similar levies. The estimated amounts of these should be established as percentages and excluded from the amounts of salaries and wages to be financed by ADB.

3.4.3.1.5. Once ADB and the borrower have reached agreement on these percentage deductions, they should be reflected in the categories for disbursements in the legal documents. This will enable disbursement claims by the borrower/EA to be appropriately adjusted, where necessary, by the requisite percentages.

3.4.3.1.6. Borrower/EAs should be encouraged to make claims net of taxes (as represented by the agreed percentages). The disbursement process will be expedited if ADB does not have to make the appropriate adjustments.

3.4.3.1.7. Auditors should be informed of these percentage adjustments (to eliminate taxes from disbursement claims). This is so they can ensure that claims are legitimate, particularly when Statements of Expenditures (SOEs) are used.

3.4.3.2. Foreign Costs

3.4.3.2.1. As with local costs, ADB does not finance taxes and duties paid by a borrower/EA on foreign costs. For direct purchases, these are relatively easy to identify as line items in quotations, bids, and invoices.

3.4.3.2.2. Where commodities are acquired indirectly, such as petroleum products included in manufacture and various processes, it may be necessary to determine (as for local costs above) an appropriate percentage that should be deducted from the total costs of the goods or services received by the borrower/EA. The latter adjustment should be reflected in the percentage of goods to be financed for the particular categories of disbursements in the legal documents. OM H2 – *Financing Indirect Foreign Exchange Costs of Projects* – provides further details on indirect foreign exchange costs.

3.4.3.3. Date of the Base Cost Estimate

3.4.3.3.1. The date of the Base Cost Estimate should be specified in the RRP and should not be earlier than 6 months prior to presentation of the loan for the project to the ADB Board for approval. If this period elapses prior to Board presentation, the base cost should be revised by indexation up to a period of 12 months from the date specified above. A reappraisal of costs should be made if the presentation is to be made more than 12 months after the specified date.

3.4.3.3.2. The reliability of base cost estimates will reflect the amount of detailed preparation work that has been undertaken before appraisal. For example, for a large reservoir, or a major roll-on/roll-off harbor facility, the detailed engineering may be completed before appraisal and the base cost estimate will have a correspondingly high degree of reliability.

3.4.3.3.3. This applies to projects involving purchases of equipment that is of standard design, in quantities that are precisely specified, such as telecommunications expansions. Some projects may be appraised when there is much less-detailed information available about designs or quantities. In health care projects, for example, the exact locations and the designs of clinics may not be known at the time of appraisal. The base cost estimates in such cases may have been made by setting a target population to be served, allocating the building space per 1,000 according to local norms, and estimating costs on a price-per-square-meter basis obtained from actual costs of similar local clinics.

3.4.3.3.4. Similarly in some sector loans and agricultural projects, slum-upgrading projects, minor water and sanitation systems projects, and highway improvement projects, base costs may be estimated by extrapolation using unit prices derived from detailed designs and specifications for sample areas and facilities which are representative of the various project components.

3.4.3.3.5. Such bases for estimating are acceptable to ADB, provided that the appraisal team is assured of the relevancy and currency of the data, and that, where necessary, appropriate risk contingencies are provided.

3.4.3.4. Treatment of Financial Charges During Development

3.4.3.4.1. Financial charges during development (FCDD) can include interest, commitment charges and front-end fees. FCDD must be shown in the cost estimates table.

3.4.3.4.2. A brief discussion of FCDD should be included in an RRP appendix or supplementary appendix. The discussion should summarize the rationale for including FCDD in the project costs, detail the criteria used, and describe the calculation method. The calculation method should follow that normally applied in computing interest charges when forecasting Income Statements and Cash Flow Statements in the financial analysis of an EA's financial performance.

3.4.3.4.3. The period of charging FCDD against loan proceeds should be specified. This period will normally be the same as, or less than, the project implementation period. The Treasurer's Department (TD) considers that 5-year swap rates are most appropriate for determining the rate of interest during construction (see, for instance, TR/140.01/JL/2002-023, 14 February 2002). The TD updates these rates regularly and should be approached for advice, if necessary (see http://www.adb.org/Documents/Brochures/LIBOR/indicative_rates.pdf). These rates are suitable for loans from ordinary capital resources (OCR). Specific advice should be sought on applicable IDC rates for ADF lending (as at 30 April 2003, the ADF rate was 1%).

3.4.3.5. Requests for Retroactive Financing

3.4.3.5.1. The term "retroactive financing" refers to ADB financing of project expenditures incurred and paid for by the borrower or recipient during or after appraisal but before an ADB loan or technical assistance agreement becomes effective. OM H4 (*Retroactive Financing*) should be referred to in the first instance. As a general rule, no funds can be disbursed for expenses incurred prior to the date of effectiveness of the loan agreement. However, based on a prior agreement between ADB and the borrower, a special clause authorizing the financing of certain expenses incurred before this date may be included in the loan agreement. This clause will show the amount of the retroactive financing, the category of expenses concerned, and the date from which the expenses may be incurred.

3.4.3.5.2. The financial analyst should ensure that any borrower requests and justifications for retroactive financing are recorded in the aides memoire prepared during project identification, project preparation, and/or project appraisal, as well as in related reports issued on return to Headquarters.

3.4.3.6. Treatment of Taxes and Duties

3.4.3.6.1. As discussed in section 3.4.3, ADB does not finance taxes and duties that are likely to be incurred in acquiring goods and services required for project implementation. The financial analyst should advise the borrower and the EA of this funding limitation, and ensure that the borrower/EA understand that their funding sources must meet these obligations.

3.4.3.6.2. In some projects, goods and services costs include taxes and duties (including customs duties), but the amount of these taxes and duties is not well defined. In these cases, the percentage amount to be financed by ADB, for that category of goods and services in the loan agreement, should be reduced by an amount estimated to equal the amount of taxes and duties. For example, if cement costs include taxes and duties estimated to represent 30% of the total invoiced price, ADB should only be obligated in the category of goods that includes cement to finance 70% of the invoiced price.

3.4.3.6.3. Where there are multiple items in the same category, some of which bear no taxes, and others that are charged at varying rates, the financial analyst must work with the technical experts to prepare a cost analysis of the goods to estimate the overall percentage reduction in ADB financing for the category concerned.

3.4.3.6.4. In some sectors, ADB may be invited to finance incremental salaries and wages of the EA or of involved departments and agencies of government and local organizations. In these cases also, these incremental costs often include taxes in the form of income taxes, employer contributions to national insurance, social security contributions, and similar employee benefits. These are not eligible for ADB financing and should be eliminated from calculations of ADB financing of incremental (or any other forms) salaries and wages. In this regard, it is important for the financial analyst to work with the EA to establish a mechanism for claiming reimbursements from ADB of expenses net of taxes and duties.

3.4.3.6.5. The costs of excluding taxes and duties should be kept to a minimum. As such, formulas that are to be used should be agreed between the EA and ADB, and notified to the external auditor, so that the external auditor may apply suitable tests to verify Statements of Expenditure (SOEs) and direct payments.

3.4.3.6.6. It should be noted that ADB does not seek to exclude any small amounts of indirect taxation on duties levied at secondary or tertiary stages of manufacture of goods and services to be used by the project. For example, taxes on petroleum products used in the manufacture of plastic containers would not be quantified and excluded. However,

taxes and duties on petroleum products purchased directly by the EA and intended for project construction purposes should be excluded from invoices when submitted to ADB for reimbursement.

3.4.4. Determining Contingencies

3.4.4.1. Contingencies in General

3.4.4.1.1. Contingencies are an integral part of the expected total project cost and normally are necessary for all project items involving significant expenditures. Contingencies cannot provide assurance against the effects of all possible adverse events or conditions.

3.4.4.1.2. Contingency allowances should reflect probable (forecast) physical and price changes and costs arising from special risks that can reasonably be expected to increase the base cost estimate. All contingency allowances should be identified in cost tables separately from base cost estimates and any special features relating to them should be explained in the RRP text.

3.4.4.1.3. Separate estimates should be made of physical contingencies and of price contingencies and shown as line items in the project cost table. For projects with several major components, it is generally desirable to present contingency estimates separately for each component as well as for the project as a whole. The text accompanying the cost tables should discuss the physical factors, price changes, and risk factors expected to affect the project costs from the date of the base cost estimates specified in the RRP and the completion of the project.

3.4.4.1.4. Where financing charges are included in the project Cost Estimates table, contingencies may be necessary to reflect possible increased costs of funds during project implementation (outside of loan agreements that normally fix the interest rates on loans that may be used to finance FCDD, etc). These increases in financing costs should be regarded as price contingencies, but included in the financing charges and disclosed (with justification) in the RRP.

3.4.4.1.5. Appraisal missions should confirm that: (i) the estimates produced for RRPs specifically designate all physical and price contingencies as such, (ii) the amounts are reasonable, and (iii) no contingencies are included in the base cost estimates. Note the following exceptions:

- technical assistance projects,
- financial institutions that propose to implement industrial and agricultural credit projects, and
- sector and subsector adjustment loans.

3.4.4.1.6. In the case of technical assistance projects and industrial development finance and agricultural credit projects—where the project is essentially a line of credit to help finance a program defined in financial terms and without specific physical content—contingency allowances should not be added separately.

3.4.4.1.7. Price contingencies should only be included for those sector/subsector loans, where physical targets may have been broadly defined but the exact scope is not essential to the success of the project (e.g., installation of 500 serviced sites as part of a rolling program, or maintenance of rolling stock in railway workshops).

3.4.4.1.8. The text of the RRP should specify exceptions. The impact on such projects of any shortfall in the expected amounts of works, goods or services should be tested by sensitivity analysis.

3.4.4.2. Determining Physical Contingencies

3.4.4.2.1. Allowances for physical contingencies reflect expected increases in the base cost estimates of a project due to changes in quantities, methods, and period of implementation. Physical contingencies should be calculated in foreign and local cost terms, and expressed as percentages of the foreign and local base costs in the project cost table.

3.4.4.2.2. The principal factors from which uncertainties arise in civil works and for which provisions for physical contingencies should be made are: (i) the type of terrain where the project is to be constructed, particularly (a) geologically difficult areas where slips and slides are frequent but are difficult to predict, (b) areas of thick marine clay deposits where the flooding potential is high, and (c) areas subject to frequent earthquakes; (ii) the climatic conditions in the project area (e.g., the susceptibility to cyclones or the likelihood of unusual rain or wind conditions); (iii) difficult access to the work site because of long and poorly maintained roads or railroads which may be subject to flooding, landslides, etc.; (iv) the amount of field work that has been completed, particularly the degree of thoroughness of borings and subsurface exploration as well as the location and testing of construction material sources (gravel, rock quarries, etc). Some projects covering a large area or involving very long and deep excavations, such as tunnels, are so expensive, or even impossible, to explore thoroughly in advance that it is prudent to assume some risks of encountering poor conditions; (v) the consultant's

knowledge of local conditions of materials and labor costs; (vi) the degree of precision with which the quantity estimates have been prepared; (vii) the possibility of design changes during construction and the addition of unforeseen items; and (viii) the quality of contract supervision.

3.4.4.2.3. Some of the main factors from which uncertainties arise with regard to material and equipment components are: (i) the degree of precision with which quantity estimates of needed material and equipment, including necessary spare parts, has been prepared; (ii) the extent to which detailed specifications for material and equipment has been set; and (iii) the extent to which equipment is to be purchased off-the-shelf or on special order.

3.4.4.2.4. The extent to which the services can be accurately defined in advance is a major cause of uncertainties with respect to the provision of services. If the extent of the services can only be fully defined during the course of project implementation—for example, in the case of site investigations for the design of a large command area irrigation scheme—a relatively large contingency allowance for this portion of the services might be reasonable.

3.4.4.2.5. ADB expects that physical contingencies would normally be between 5-10%; however, they would be higher for marine work, tunneling, dam construction or road construction involving difficult soil conditions. Acceptable ranges of physical contingencies will vary from sector to sector as well as for the various components of a project. As an example, the allowances for civil engineering works for power stations probably would be higher than those for the supply of materials or equipment for schools.

3.4.4.2.6. When physical contingencies are relatively large, for example, more than 10-15% overall, consideration should be given to further refinement of basic designs and additional site investigations before appraisal to reduce uncertainties. In any event, if the physical contingencies exceed five percent of the base cost, justification should be made in the fact-finding BTOR (and Aide Memoire) and the RRP.

3.4.4.2.7. Higher contingency provisions, which must be fully justified in the RRP, are often necessary to reflect extraordinary uncertainty inherent in works such as structural foundations in difficult soils, pile driving, tunnels, dam foundations, rehabilitation of existing facilities, where it is too costly, or impractical to further refine the quantity and cost estimates.

3.4.4.3. Determining Price Contingencies

3.4.4.3.1. Price contingency allowances reflect forecast increases in project base costs and the physical contingencies due to changes in unit costs for the various project components/elements beyond the date of the base cost estimates. Price contingencies should be expressed as percentages of the base costs plus physical contingencies, separately for the local and foreign expenditures of the project, and for the project as a whole.

3.4.4.3.2. Allowance for price contingencies has to provide for any expected price increase during the project implementation period, from the date of the base cost estimate. This would include price increases due to inflation, foreign exchange gains and/or losses, and expected changes in real price levels (if any). ERD maintains an intranet site *Domestic and International Cost Escalation Factors* (http://lnadbg1.asiandevbank.org/erd0004p.nsf/). These rates should be applied consistently to all projects.

3.4.4.3.3. In determining the appropriate amount to be allowed for price contingencies, the following key factors should be considered: (i) the project execution period—this is important not only for estimation of the cost of local resources but also for the assumptions regarding exchange rate adjustments, including a realistic estimate of the time between the date of the base cost estimate and the start of the construction or implementation; (ii) the inflation rates maintained by the Economics and Research Department (ERD) on the intranet site "Domestic and International Cost Escalation Factors" should be consistently applied to all projects in that country; (iii) the extent of expected annual increases in international prices of works, goods, and services to be used in the project; (iv) the extent to which local or foreign prices for particular types of works, goods, and services will follow general inflationary trends. For example, when a construction industry is overextended or depressed, price trends may exceed or be lower than the general movement of prices; similarly, technological improvements in the production of some types of equipment have resulted in a much lower rate of price increase than for international prices overall; and (v) the extent to which a large project may have the effect of increasing the cost of local resources such as land, labor, and raw materials more rapidly than the general price escalation. In cases where (iii)–(v) would together have an impact on the general price levels, the impact should be indicated in a footnote to the cost table (indicating the assumptions used in computing the price contingency).

3.4.4.3.4. If, in the opinion of the financial analyst (and/or the mission), distortions may occur due to significant differences between domestic and foreign inflation rates and potential exchange rate adjustments, the issues, where necessary, should be referred after discussion with the Operations Coordination Division, to the Regional Director. This could pertain to those countries that are prone to frequent devaluation.

3.4.4.3.5. The allowance for price contingencies has to be worked out on an item-by-item basis and has to be related to the terms of payment and the time when payments become due and payable. The cumulative rate of price increase for a particular year has to be calculated by compounding the estimated rate of price rise in prior years and one half of the rate of price increase in the year concerned for application to the amounts to be expended each year as per the base cost estimate. In the following example: (i) procurement is assumed to commence one year after the date of the Project Cost Table; (ii) Years 2-6 are years of implementation, and (iii) normally compound interest tables would be used to calculate the increase for the years prior to procurement before adding 50% of the latest (current) year's inflation rate.

Example: Calculating Price Contingencies for Project Appraisal and Financial Projections

Year	Base Cost + Physical Contingencies in Project Cost Table	Rate of Inflation from Date on Project Cost Table	Calculation	Inflation-Adjusted Base Cost + Physical Contingencies	Increase due to Inflation
1	0	2.4%	Year for negotiations, Board approval signing, etc	0.00	0.00
2	50	2.4%	50 x (1+ 0.024) x (1+0.012)	51.81	1.81
3	100	2.4%	100 x (1+0.024) x (1+0.024) x (1+0.012)	106.12	6.12
4	200	2.4%	200 x (1+0.024) x (1+0.024) x (1+0.024) x (1+0.012)	217.33	17.33
5	75	2.4%	75 x (1+0.024) x (1+0.024) x (1+0.024) x (1+0.024) x (1+0.012)	83.45	8.45
Total	**425**			**458.71**	**33.71**

3.4.4.3.6. Government procurement procedures which award only fixed-price contracts even when construction is over a number of years, or which set a ceiling on the allowable price adjustment should be ignored when preparing project costs for ADB financing. Bidders typically adjust for such practices by increasing their base bids and the total cost including price contingencies is often not significantly different to the project cost forecast by ADB.

3.4.4.3.7. Accordingly, in using estimates prepared on the basis mentioned in the previous paragraph for comparative purposes in establishing the base cost estimates, care should be taken to deduct any price contingencies implicitly included as part of the base cost.

3.4.4.4. Determining Risk Contingencies

3.4.4.4.1. The standard approach to the costing of a project requires that the cost of land, equipment, goods, and services should be based on current prices with allowances for unknown physical conditions that may increase costs, and for inflation. But where current prices cannot be determined until the borrower takes certain steps or decisions, or certain events have occurred it may be necessary to include a risk contingency. An alternative is to encourage the borrower to insure against risk, possibly by using the Multilateral Investment Guarantee Agency (MIGA).

3.4.4.4.2. Risk contingencies are infrequently used because, wherever possible, the financial impact of future events should be reflected either in base costs, or in physical or price contingencies. Therefore, a strong justification is required for their inclusion as a separate line item in a cost table. Such justifications are typically used as a means of explaining to ADB management that current circumstances pertaining to the costing of the project make normal estimation techniques unreliable.

3.4.4.4.3. The provision of a separate line item is to ensure that the attention of ADB management is deliberately drawn to the risk and its potential cost impact on the project; and that the provision will not be used for any purpose other than the specific risk(s) identified in the cost table. When ADB staff consider that certain conditions may be present to a degree which makes the estimation of costs of future events/activities, (such as biddings) particularly uncertain, a special item of "risk allowance" should be calculated and shown separately from the physical and price contingencies. As an example, because of uncertain political and economic conditions, foreign contractors may only offer bids for work in a country at prices which include a premium for the unusual risks they would face.

3.4.4.4.4. Any part of the "risk allowance" not needed after bids are received should be cancelled, and not reallocated to the general contingencies. Suitable language should be included in the loan agreement to this effect. A "risk allowance" contingency, if used, should be included as a separate contingency item in the cost table and the reasons for it, the amount, and possible cancellation should be explained in the text of the RRP and in the loan agreement. This contingency should be included in the financial and economic sensitivity analysis. In lieu of including a separate risk allowance, it may be preferable to require the prospective borrower to complete the bidding process to the stage of bid evaluation before the loan is made.

3.4.4.4.5. In the event that a borrower would insure a risk with the MIGA, the costs of the premium should be shown as a line item in the project Cost Estimates tables.

3.4.5. Disbursement Profiles

3.4.5.1. ADB has gained considerable experience and information since it began its operations with regard to the capacity and capability of borrowers and their EAs in the various sectors to fulfill their commitments to construction schedules.

3.4.5.2. Disbursement patterns show that borrowers rarely meet these schedules, and time (and cost) overruns are a consistent feature of many lending operations. Therefore, the forecast construction period of a project should not vary greatly from the average for similar projects executed in the same sector in the country concerned. The financial analyst should obtain disbursement data for the country and sector in which the project under development is located to develop a disbursement profile.

3.4.5.3. The adoption of realistic implementation and disbursement estimates based on sector/country disbursement profiles should be reflected in the contingencies allowances and the economic internal rate of return (EIRR) and financial internal rate of return (FIRR) calculations.

3.4.5.4. Base costs are typically estimated as part of a feasibility study and are refined to take into account any further engineering and other detailed preparation work that has taken place by the time of appraisal.

3.4.5.5. With large, complex projects, or in cases where there is little record of recent procurement involving ADB projects in the country, the services of specialized cost estimating firms, or quantity surveyors, or the advice of contractors or manufacturers may be employed to confirm or modify base cost estimates.

3.4.5.6. During appraisal, the estimates should be adjusted and updated to take account of any price changes in the period between their preparation and the base cost date specified in the RRP.

3.4.6. Preparing Financing Plans

3.4.6.1. The project Cost estimate table will provide as its bottom line, the total financing required for a project. It is essential that the means of financing this total expenditure is specifically defined in the appraisal report. The illustration and discussion of the financing plan for a project to be implemented by a revenue-earning enterprise usually consists of a summary—all in current terms—of:

- the project financing requirements and the external sources of finance from the cash flow statement,
- other capital and incremental working capital expenditures occurring during the project development period,
- incremental and initial operating costs to be incurred during the implementation period, to be financed out of either project capital funding, or from local budgetary provisions,
- net income from any ongoing operations, and
- debt servicing.

3.4.6.2. In a nonrevenue-earning entity, where there are rarely any internally generated sources of funds, project financing is usually not related to the future financial performance of the entity. In such cases, the illustration and discussion of the financing plan would be confined to the project only and set out with the discussion on project costs.

3.4.6.3. The text of an appraisal report requires a discussion of the financing plan. In the case of a nonrevenue-earning project, this is normally an extension of the discussion of the Cost Estimates. In the case of a revenue-earning project to be implemented by an executing agency, a summary financing plan may be included after the Project Cost Estimates table. A detailed discussion on the financing plan (with a comprehensive table showing the financing plan, where necessary) should be included as part of the Financial Analysis Chapter. The following items should be covered, with detailed explanations, where necessary, in an appendix to the report: (i) any cofinancing arrangements; (ii) availability of internal funds, referenced as necessary to the cash flow statements; (iii) the self-financing ratio, particularly when this is to be incorporated in an operating covenant; (iv) equity contributions; (v) terms of loans, including interest rates (or onlending rates, where applicable), grace periods, repayment periods, incidence of foreign exchange risk, guarantee fees, and interest during construction; and (vi) the dependability of the financing plan in terms of firm commitments that have been received, the progress of negotiations where loans or equity contributions have not been finalized, the availability of additional sources of funds in the event of cost overruns or lower-than-expected generation of internal funds, and a sensitivity analysis relating to the latter items.

3.4.6.4. Funds from all principal sources should be identified as line items in a financing plan. Funds sources should be set out in terms of foreign and local currencies, using the US dollar as the foreign currency, and grouped in the table under local and foreign sources, including ADB loans, funds from other foreign lenders and donors, local loans, local equity including government grants and subsidies, and internally generated funds.

3.4.6.5. In cases where the EA is conducting an ongoing operation, as in the case of a public sector enterprise, it may, or may not, be generating sufficient funds from ongoing operations to support these activities. It is, therefore, advisable to include in the financing plan either the net funding through the period of the financing plan that the agency will generate, or the additional funding needs that it will require, to operate and maintain its existing and new facilities. The sources of additional funding should be identified, for example, subsidies from government. The financing plan should contain an explicit reference to any contributions to investment to be made by the agency during implementation, with specific reference to the acceptability to ADB of a policy of deficit funding by government, including any policy that, in effect, contributes to the capital investment of the EA.

3.4.6.6. The following is an example of a typical summarized Financing Plan.

	Local Currency	Foreign Exchange	Total	%
Funds Required				
Proposed Project				
Capital expenditures	0.00	0.00	0.00	
Operating expenditures	0.00	0.00	0.00	
Financial charges during development	0.00	0.00	0.00	
Total Project Requirements	0.00	0.00	0.00	100%
Sources of Funds				
Proposed ADB loan	0.00	0.00	0.00	
Other loans	0.00	0.00	0.00	
Equity or capital contributions				
Government	0.00	0.00	0.00	
Other sources	0.00	0.00	0.00	
Subsidies for operations	0.00	0.00	0.00	
Internal cash generation	0.00	0.00	0.00	
Total Sources	**0.00**	**0.00**	**0.00**	**100%**

3.4.7. Computing Incremental Project Cash Flows

3.4.7.1. A project's annual net cash flows should be forecast over the project life (including the implementation period). Annual net cash flow is the difference between annual cash receipts and annual cash payments. In cases where the project represents incremental development—for instance, the extension of an existing power plant—flows should be computed on an incremental basis (e.g., "with project scenario" and "without project scenario").

3.4.7.2. The cash flows should include all payments incurred to construct, operate, and maintain the project facilities over its useful life. The cash flows should be expressed in real terms (i.e., current costs excluding any inflation elements). The cash flows should also exclude any interest paid or received. All kinds of taxes in the forms of customs and excise duties, value added taxes, similar levies, and income taxes should be included. The estimate of taxes on earnings should be based on operating income (before financial expenses but after depreciation) generated from the project and at the effective tax rate.

3.4.7.3. The capital cash flows should be reconcilable with the project cost estimates; that is with the base costs and physical contingencies, but with the exclusion of price contingencies and financial charges during development (FCDD). Price contingencies are excluded because the FIRR is calculated in real terms (i.e., without the effects of price escalation and/or foreign currency rate fluctuations). FCDD are excluded so that project benefits can be compared with project costs—this effectively segregates the investment decision from the financing decision. The benefits should include all cash receipts (including subsidies) in real terms derived from project inputs and salvage (resale) values receivable on asset disposals. Typically the enterprisewide forecasting period for financial analysis presentations won't exceed 5 years beyond the completion of project construction, even though normal operating levels may not have been reached; this will not provide enough information to prepare a financial benefit-cost analysis for the project investment on a discounted cash flow basis. This shortcoming may be overcome by preparing an income statement forecast for the project in isolation up to the achievement of capacity operations and assuming that the net cash flow is held constant thereafter. If the project is one of several being executed by an EA (e.g., railways), separate projections must be prepared.

3.4.7.4. Project cost streams are calculated using real terms. The relevance of contingencies for the project financial analysis therefore depends upon whether or not the contingencies reflect the use of additional real resources: (i) physical contingencies represent the estimated cost of the expected additional real resources required and therefore should be included in this analysis of all projects; (ii) price contingencies should be excluded from a financial benefit-cost analysis; and (iii) risk contingencies, that may be included in project cost estimates, should be included where these represent the likely cost of a physical risk, but excluded where they relate to a cover for the risk of changes in prices (as for price contingencies in the previous paragraph). But it should be noted that risk contingencies that relate to pricing of goods and services are often withdrawn following receipt of bids. The results of these bids may require revisiting the financial benefit-cost analysis.

Difference Between Current and Real Terms

Nominal price/cost is used interchangeably with current price/cost, and real price/cost with constant price/cost. Current price/cost includes the effects of general price/cost inflation. Real price/cost refers to a value from which the effect of general price/cost inflation has been removed.

Example: A project is expected to require 100 units of materials per annum. Today, a unit can be purchased for $1.00. However, inflation is forecast to be 10% per annum.

	Today		One Year		Two Years	
	Unit Price	Cost	Unit Price	Cost	Unit Price	Cost
Real Cost	$1.00	$100	$1.00	$100	$1.00	$100
Current Costs	$1.00	$100	$1.10	$110	$1.21	$121

Appendix 7 of the Guidelines for the Economic Analysis of Projects provides further guidance on price concepts.

3.4.7.5. Financial analyses such as cash flow projections or financing plans are to be prepared in current price terms and should include all contingency allowances.

3.4.7.6. Exchange rates for converting currencies must be fixed at a particular date. These rates must be consistently applied throughout the forecast period.

3.4.7.7. An example of a net cash flow calculation is shown in the table below (Note that years 2006–2009 are not shown in this example). The project costs comprise: (i) phased investment payments during 2001–2004, (ii) operation and maintenance costs ($1.40 per m³ water sold), (iii) sales taxes (1% on water sales, 3% on connection fees), (iv) business and land taxes (lump sum of $100,000 per year), and (iv) connection costs ($1,425 per connection).

3.4.7.8. A clear statement of assumptions should support the forecast cash flows. The assumptions should state the exchange rates used for conversion purposes. Furthermore, the assumptions must state whether the forecast cash flows have been prepared in current or real terms. Where they have been prepared in real price terms, the reasons for doing so must be stated clearly.

Net Cash Flows (2001: $'000s)

	2001	2002	2003	2004	2005	2010–2031
Operating Cash Flows						
Receipts						
• Water sales receipts						
♦ Domestic consumers	0	668	1,613	2,922	4,740	12,217
♦ Government establishments	0	21	50	80	124	726
♦ Private establishments	0	32	76	117	170	997
Subtotal	0	722	1,739	3,119	5,034	13,940
• Connection fees	0	2,552	3,068	3,689	4,436	0
Total operating receipts	0	3,273	4,807	6,807	9,470	13,940
Payments						
• Operation and maintenance	0	–410	–918	–1,534	–2,303	–4,281
• Sales taxes	0	–84	–109	–142	–183	–139
• Business/land tax	0	–100	–100	–100	–100	–100
• Connection payments	0	–2,424	–2,914	–3,504	–4,214	0
Total operating payments	0	–3,018	–4,041	–5,280	–6,800	–4,520
Net Cash Flows from Operations	0	255	766	1,527	2,670	9,420
Investing Cash Flows						
Investments	–7,184	–43,107	–64,660	–28,738	0	0
Net Cash Flows to Investments	–7,184	–43,107	–64,660	–28,738	0	0
Net Cash Flows	–7,184	–42,852	–63,894	–27,211	2,670	9,420

3.5. Preparing Financial Benefit-Cost Analyses

3.5.1. Introduction

3.5.1.1. ADB requires that financial and economic analyses be undertaken for projects. Both types of analysis have the same objective—to assess whether the proposed investment is viable. The concept of financial viability is not the same as economic viability. The financial analysis of a project examines the adequacy of returns to the project-operating entity and to the project participants, whereas economic analysis measures the effect of the project on the national economy, as a whole.

3.5.1.2. For a project to be economically viable, it must be financially sustainable, as well as economically efficient. If a project is not financially sustainable, economic benefits will not be realized. Financial and economic analyses are therefore complementary.

3.5.1.3. While both types of analysis are conducted in monetary terms, the major difference lies in the definition of costs and benefits. In financial analysis, all expenditures incurred under the project and revenues resulting from it are taken into account. This form of analysis is necessary to (i) assess the degree at which a project will generate revenues sufficient to meet its financial obligations, (ii) assess the incentives for producers, and (iii) ensure that demand or output forecasts on which the economic analysis is based are consistent with financial charges or available budget resources. Economic analysis attempts to assess the overall impact of a project on improving the economic welfare of the citizens of the country concerned. It assesses a project in the context of the national economy, rather than for the project participants or the project entity that implements the project.

3.5.1.4. This part of the Guidelines describes ADB's approach to preparing financial benefit-cost analysis, which involves six steps:

- Preparing project cost estimates (see section 3.4.3),
- Forecasting incremental project net cash flows (see section 3.4.7),
- Determining the appropriate discount rate (i.e., Weighted Average Cost of Capital (WACC) serving as a proxy for the financial opportunity cost of capital (see section 3.5.2)),
- Calculating the financial net present value (see section 3.5.3),
- Calculating the FIRR (see section 3.5.3), and
- Undertaking risk and sensitivity analysis. The sensitivity analysis examines the likely effect of changes in forecasting assumptions on the project's financial viability (see section 3.5.4).

3.5.1.5. The project RRP should describe how the project's FIRR compares with WACC. The RRP appendixes should include supporting analyses including sensitivity analyses. The Knowledge Management section of the web-based Guidelines contains Chapter 5 of ADB's *Handbook for the Economic Analysis of Water Supply Projects*. The chapter is structured around a worked example of financial cost-benefit analysis for a water supply project and should be read in conjunction with ADB's *Guidelines for the Economic Analysis of Projects*.

3.5.1.6. ADB requires that poverty aspects of projects be considered. To this end, consideration must be given—when preparing project cost estimates, financial benefit-

cost analyses and forecasts—to the preparation of the poverty impact assessment (See *Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects*).

3.5.2. Determining the Discount Rate–WACC

3.5.2.1. Financial Opportunity Cost of Capital

3.5.2.1.1. The net cash flows during the lifetime of the project (30 years) are discounted at the financial opportunity cost of capital (FOCC) to show the project's worth. The FIRR calculated on the net cash flows shows the project's profitability.

3.5.2.1.2. The weighted average cost of capital (WACC) serves as a proxy for the FOCC to assess the financial viability of projects. Although it is an accepted benchmark, it is important to understand that the WACC may not fully reflect the FOCC in the market. Although a project may generate sufficient returns to allow full recovery of all investment and operations and maintenance costs while still yielding a small return on investment, this return may not be sufficient incentive for the owner to make the original investment or to maintain the investment.

3.5.2.1.3. Private foreign investors will be looking for returns on equity that also include an allowance for risks, such as political and economic. Private domestic investors will also have alternative investments, whether they are in financial assets, other productive activities or areas such as real estate. Government investment may be guided by whether the funds are fungible (interchangeable), by the real cost of investment funds and the economic benefits of the project. If funds are fungible, they may be more interested in investing in projects with higher returns, economic and/or financial.

3.5.2.1.4. Finally, projects with low returns are riskier to implement and strain the financial sustainability of the corporate entity (public or private) charged with its operation and maintenance. Consequently, it is important to keep these issues in mind when comparing the FIRR of a project with a benchmark such as the WACC. These issues become particularly important as the role of government in the supply and operation and maintenance of infrastructure services changes and private sector participation becomes more prevalent.

3.5.2.2. Calculating the Weighted Average Cost of Capital

3.5.2.2.1. The discount rate to be used in financial benefit-cost analyses is the WACC. The WACC represents the cost incurred by the entity in raising the capital necessary to

implement the project. Since most projects use several sources to raise capital and each of these sources may seek a different return, the WACC represents a weighted average of the different returns paid to these sources.

3.5.2.2.2. The RRP should include a demonstration of how the FIRR (which is in *real* terms) compares with the WACC for the actual project, also expressed in real terms. Both FIRR and WACC should be measured on after-income tax bases. The following approach should be taken to the WACC calculation. Reference is made to the sample calculation shown below.

Step 1. **Categorize** each financing component by source separately as shown in the table below. These components should be taken from the Project Financing Plan as the WACC is calculated only for the project—not the organization as a whole.

Step 2. **Estimate the Cost of Funds.** Ascertain the actual lending (or onlending) rates, even where these may not be the current market rates, together with the cost of equity contributed as a result of the project. Other factors:

- A cost of debt should be computed for each source of debt, (domestic currency denominated debt, ADB debt, cofinanced debt, etc.).
- Cost of debt should include interest, service charges, commitment fees, and front end fees as applicable. The front end fees and commitment charges occur at the beginning of the loan term. The average cost of debt can be estimated by totaling the entire amount of interest to be paid over the life of the loan, with the projected commitment charges and computed front end fee and dividing by the tenure of the loan.
- Cost of debt should be based on the face value interest rate of the debt instrument; for example, the bond coupon rate or the interest rate applicable to a particular loan.
- For debt instruments with a variable interest rate, the cost of debt will vary over the life of the loan. As such, the WACC should be computed using an estimated average interest rate. The forward London interbank offered rate (LIBOR) swap rate is considered to be an appropriate proxy for what the likely average cost of debt would be over the tenure of the loan. For example, for ADB LIBOR based products, the indicative 10-year LIBOR swap rate (as indicated by ADB's Treasury Department) should be used, adjusting for lending spreads and/or other charges.
- The cost of equity is more difficult to compute. In theory, it represents the opportunity cost of investing in the project. The most appropriate cost of equity would be the Government's economic cost of capital. However, in

most cases, the economic cost of capital is difficult to determine. The cost of equity should reflect the Government's cost of raising capital, the tenure of the investment and the risks associated with the project.

- One approach to establishing a cost of equity would be to consider the Government's long-term bond rate (presuming bonds are issued and are deemed to be risk free), adjusted upward to reflect the term (i.e., bonds are often issued for 5–15 years, project investments tend to cover a longer period), and then adjusted upward to reflect project risks.
- Another approach would be to consider the desired rate of return for an equally risky venture were it to be financed through the private sector. The Capital Asset Pricing Model provides a methodology for this computation. However, emerging markets may be relatively small and underdeveloped. Determination of an appropriate beta coefficient and market premiums may be problematic. In the absence of such a beta, one approach would be to use a USA beta or betas for other neighboring countries (such as India, Thailand, etc.) for the relevant sector and adjust upwards to reflect country and project risk. The formula to be applied is:

  Nominal Cost of Equity = Rf + B * (RPm) + RPo

  Where:

  Rf is the risk free interest rate (i.e. government treasury bills)

  B is the equity beta

  RPm is the market risk premium

  RPo reflect other premiums as necessary to reflect project specific risks.

  - The nominal cost of equity should be converted to real cost of equity as noted above.

  - Irrespective of the methodology applied, the rationale for the cost of equity should be noted in the financial evaluation appendix of the RRP.

- Grant funds provided to the project also have an opportunity cost. As such, it is proposed that grants be treated in a similar fashion to equity and the cost of grant be assumed to be the cost of equity.

Step 3. **Adjust for Corporate Tax**. Ascertain whether the interest payments relating to each component are deductible for corporate tax purposes and, if so, the level of the applicable tax rate. Adjust each component as appropriate.

Step 4. **Adjust for Domestic Inflation.** The estimated costs of borrowing and equity capital should be adjusted for inflation to obtain the WACC in real terms.

- Foreign inflation rate should be used for debt denominated in foreign currency units.
- Domestic average inflation rate should be used for debt denominated in domestic currency units.
- If ADB loans (or other foreign source loans) are onlent to the project entity in domestic currency units, then the domestic inflation rate should be used in computing the real cost of this debt.
- The inflation rate used should be those noted on the ERD intranet site *Domestic and International Cost Escalation Factors*

Step 5. **Determine the WACC**. Apply the weighting percentage to each component to derive the WACC.

Methodology for Calculating Weighted Average Cost of Capital

	Financing Component					
	ADB Loan	Foreign Loans	Domestic Loans	Government Funds	Equity	
A. Amount (Rs.'000)	50,000	5,000	5,000	30,000	10,000	100,000
B. Weighting	50.00%	5.00%	5.00%	30.00%	10.00%	100.00%
C. Nominal cost	6.70%	6.70%	12.00%	10.00%	10.00%	
D. Tax rate	40.00%	40.00%	40.00%	0.00%	0.00%	
E. Tax-adjusted nominal cost [C x (1 – D)]	4.02%	4.02%	7.20%	10.00%	10.00%	
F. Inflation rate	2.00%	2.00%	4.00%	4.00%	4.00%	
G. Real cost [(1 + E) / (1 + F) – 1]	1.98%	1.98%	3.08%	5.77%	5.77%	
H. Weighted component of WACC (G x B)	0.99%	0.10%	0.15%	1.73%	0.58%	3.55%
Weighted Average Cost of Capital (Real)	**3.55%**					

ADB = Asian Development Bank, WACC = weighted average cost of capital

3.5.2.2.3. In this example, the project provides its own equity capital (10%) and raises additional capital from local banks (5%), from foreign banks (5%), from ADB (50%), and obtains a government grant (30%). Differing nominal returns on each source of capital are assumed, including the expected return of 10% on its equity to its shareholders.

3.5.2.2.4. Interest payments to ADB, to the local bank, and to the foreign bank are deductible from pretax income, with corporate taxes of 40 percent (60% of interest payments to ADB and to the commercial bank remains as the actual cost of capital to the project). Dividends paid to shareholders (if any) are not subject to corporate tax (although they might be subject to personal income tax, which does not impose a cost to the entity).

3.5.2.2.5. In the example, the WACC in real terms amounts to 3.55%. This is the discount rate to be used in the financial benefit-cost analysis of this particular project as a proxy for the FOCC.

3.5.3. Calculating the Financial Internal Rate of Return and Net Present Value

3.5.3.1. The financial viability of a project to an entity is indicated by its FIRR and its financial net present value (FNPV). The FIRR is the discount rate at which the FNPV of the project's net cash flows become zero. The FIRR and FNPV should be computed for all revenue generating projects.

3.5.3.2. The FNPV is first calculated by discounting the project's net cash flows (or "free cash flows") by the WACC. The FIRR is then calculated as that discount rate at which the FNPV becomes zero.

- The free cash flows of a project include all the cash flows for the project— operational, capital expenditure, and working capital related. Operational cash flows derive from operating revenues and expenses after removing all noncash items such as depreciation and also excluding any financing flows such as interest on debt and other financing charges during construction. A standard formula for calculating free cash flows:

Operating Revenues	
Less:	Operating expenses (including depreciation)
	Taxation
add:	Depreciation
Less:	Capital expenditure on fixed assets
	Investment in working capital
= *Free Cash Flow*	

- The FNPV and FIRR are calculated on an after-tax basis in real terms (i.e., nominal financial cash flow is converted to real terms by removing the impacts of inflation and potential currency fluctuation).

- Calculations should be over a realistic useful life of the assets not necessarily over the ADB loan term. Generally, a computation over 15 years after project completion is considered reasonable.
- Should the assets have an estimated residual value at the end of the computation period, that should be included as a financial benefit in the computation.
- The FIRR and EIRR should be calculated over the same period of time.
- FNPV and FIRR calculations and assumptions should be provided in the financial evaluation appendix to the RRP.

3.5.3.3. The following table provides an example of FNPV and FIRR calculations. The table presents the calculation of project free cash flows over the project's full 20-year period (5-year construction period plus 15 years operations). In this example, it has been assumed that there are no effects from working capital changes.

Example of FIRR and NPV Estimation (2001 prices in Rs'000s)

Year	Capital Exenditure	Operating Inflows	Operating Outflows	Operating Cash Adjustments (add back depreciation less taxation)	Net (free cash flows)
0	(32,410)	-	-	-	(32,410)
1	(659,150)	-	-	-	(659,150)
2	(799,140)	-	-	-	(799,140)
3	(365,600)	-	-	-	(365,600)
4	(216,390)	-	-	-	(216,390)
5		716,279	(435,303)	(56,557)	224,419
6		719,202	(392,813)	(51,038)	275,351
7		719,202	(403,277)	(45,520)	270,405
8		719,202	(410,874)	(40,001)	268,327
9		719,202	(418,369)	(34,482)	266,351
10		719,202	(425,764)	(28,963)	264,475
11		719,202	(433,066)	(23,445)	262,691
12		719,202	(440,278)	(17,926)	260,998
13		719,202	(447,406)	(12,407)	259,389
14		719,202	(454,454)	(6,889)	257,859
15		719,202	(461,424)	(2,075)	255,703
16		719,202	(467,617)	-	251,585
17		719,202	(471,003)	-	248,199
18		719,202	(472,248)	-	246,954
19		719,202	(473,432)	-	245,770
				Net Present Value (NPV) @ WACC 3.55%	618,819
				Financial Internal Rate of Return (FIRR)	6.89%

WACC = weighted average cost of capital.

3.5.3.4. The discount rate at which the present value of the net benefits becomes zero works out to be 6.89%. This is the FIRR, which should be compared with the WACC. If the FIRR equals or exceeds the WACC, the project is considered to be financially viable. If the FIRR were below the WACC, the project would only be financially viable if subsidized, or further subsidized, by the government. In the example, the FIRR of 6.89% is above the WACC of 3.55%, and hence the project is financially viable.

3.5.3.5. The FNPV shows the present value of the net cash flows, or the project's worth today. The discount rate to be used here is the WACC. A positive FNPV indicates a profitable project; (i.e., the project generates sufficient funds to cover its cost, including loan repayments and interest payments). If the FNPV, discounted at the WACC of 3.55%, turns out to be positive, the project is earning an interest of at least the required 3.55%. In the example, as the FIRR is 6.89%, the project is forecast to earn a rate of return of 6.89%. The project, thus, earns more than the required 3.55% interest, recovers all investment and recurrent costs, and yields a profit.

3.5.3.6. A negative FNPV points to a project that does not generate sufficient returns to recover its costs, to repay its loan and to pay interest. Note that, as a general principle of discounting cash flows for the purpose of FIRR calculations, loan repayments, and interest payments are not considered part of the economic cost.

3.5.3.7. Discounted at the WACC of 3.55%, the FNPV of the project is 618,819. The project is thus financially viable. If a discount rate of 6.89% is used (equal to the FIRR), the FNPV (by definition) equals zero.

3.5.3.8. The example shows that if the discount rate used, i.e. WACC, (3.55%) is below the FIRR (6.89%), the FNPV is positive; vice versa, if the discount rate used (say 12%) were above the FIRR (6.89%), the FNPV would be negative.

3.5.4. Undertaking Sensitivity and Risk Analyses

3.5.4.1. Financial benefit-cost analysis is based on forecasts of quantifiable variables such as demand, costs, and revenues. The values of these variables are estimated based on the most probable forecasts, which cover a long period of time. The values of these variables for the most probable outcome scenario are influenced by a great number of factors, and the actual values may differ considerably from the forecasted values, depending on future developments. It is therefore useful to consider the effects of likely changes in the key variables on the viability (FIRR) of a project. Performing sensitivity and risk analysis does this.

- Sensitivity Analysis shows to what extent the viability of a project is influenced by variations in major quantifiable variables.
- Risk Analysis considers the probability that changes in major quantifiable variables will actually occur.

3.5.4.2. The viability of projects is evaluated based on a comparison of its FIRR with the FOCC. Alternatively, the project is considered to be viable when the FNPV is positive, using the selected FOCC as discount rate. Sensitivity and risk analyses, therefore, focus on analyzing the effects of changes in key variables on the project's FIRR or FNPV, the two most widely used measures of project worth.

3.5.4.3. Sensitivity analysis is a technique for investigating the impact of changes in project variables on the base-case (most probable outcome scenario). Typically, only adverse changes are considered in sensitivity analysis. The purpose of sensitivity analysis is to: (i) to help identify the key variables that influence the project cost and benefit streams, (ii) investigate the consequences of likely adverse changes in these key variables, (iii) assess whether project decisions are likely to be affected by such changes, and (iv) identify actions that could mitigate possible adverse effects on the project.

3.5.4.4. Sensitivity analysis needs to be carried out in a systematic manner. To meet the above purposes, the following four steps are suggested:

- Step 1: Identify key variables to which the project decision may be sensitive.
- Step 2: Calculate the effect of likely changes in these variables on the base-case IRR or NPV, and calculate a sensitivity indicator and/or switching value.
- Step 3: Consider possible combinations of variables that may change simultaneously in an adverse direction.
- Step 4: Analyze the direction and scale of likely changes for the key variables identified, involving identification of the sources of change.

3.5.4.5. The Knowledge Management section of these Guidelines provides further information on each of these steps in the context of a numerical example. It also discusses the use of risk analysis (see section 7.11). The information generated can be presented in a tabular form with an accompanying commentary and set of recommendations, such as the example shown below (Please note that this example is a simplistic illustration; it focuses on just six variables—a proper sensitivity analysis will examine all the key variables including all financial performance covenants).

Simple Sensitivity Analysis: Numerical Presentation

Item	Change	FNPV	FIRR %	SI (FNPV)	SV (FNPV)
Base Case		126	13.7		
Investment	+ 10%	–211	9.6	13.3	7.5%
Benefits	–10%	–294	7.8	16.6	6.0%
Operating and maintenance costs	+ 10%	68	12.9	2.3	43.4%
Currency rate movements	–20%	–211	9.6	13.3	7.5%
Construction delays	One year	–99	10.8	NPV 178% lower	

FNPV = financial net present value, FIRR = financial internal rate of return, SI = sensitivity indicator, SV = switching value

3.5.4.6. Sensitivity tests are not without problems. Correlations among the variables often pose serious difficulties. The usual technique of varying one variable at a time, keeping the others constant at their expected values, is justified only if the variables concerned are not significantly correlated; otherwise, the related variables must be varied jointly. Furthermore, sensitivity analysis may not identify any variable that, by itself, significantly affects the overall result, even though a long list of variables is tested. This does not necessarily mean that the project concerned is not risky as it ignores the effects of possible joint variations. In such cases, the sensitivity of the outcome to changes in several combinations of variables that are expected to vary together must be explored; for example, revenues rather than price and quantity separately. But it should be noted that the greater the degree of aggregation, the less useful is the information provided by the tests.

3.5.4.7. For financial analysis purposes, it may prove more useful to select features of the financial structure of a project (or an EA) that are likely to prove highly sensitive to costs or revenue flows and could cause early or midterm financial failure, even though the financial rates of return may suggest satisfactory long-term performance. Examples are debt service coverage, operating ratio and self-financing ratio. At the least, all financial performance covenants stipulated for the project, together with the FIRR, should be subjected to sensitivity analyses.

3.6. Loan Covenants

3.6.1. Introduction to Loan Covenants

3.6.1.1. As discussed in section 4.4, various performance measurement devices have been developed over time to enable owners, lenders and managers to assess enterprise

and project performance. To assist EAs to achieve their financial objectives, as well as governmental economic objectives that are being supported by ADB loans, ADB seeks assurance that the operational objectives of an EA agreed with the borrower, would be met at least through the life of the project. The Office of the General Counsel (OGC) translates these objectives into covenants. These covenants are designed to: (i) enhance the financial performance of the entity; and (ii) ensure that the investment, including ADB loan proceeds, is used effectively.

3.6.1.2. ADB asks its borrowers to perform or comply with certain covenants that are considered essential to achieving the objectives and financial viability of the project as described in the loan agreement in a manner that is consistent with ADB's policies and to ensure the financial viability of the entity. Covenants in loan agreements seek the achievement of enterprise objectives. They are varied in nature, often addressing technical, social, and economic performance, in addition to financial performance. Financial performance covenants can be broadly classified into two categories, namely financial and management systems, and financial performance. Financial and management system covenants usually address such specific problems as selling and marketing practices, inventory control, installation and operation of accounting and costing systems, control of labor and material costs, strategic and financial planning, budgeting systems, etc. Financial performance covenants are designed to: (i) support socioeconomic development; (ii) promote financial viability, satisfactory financial performance, and prudent financial management of an enterprise; (iii) development of local capability to manage without external assistance not only under normal business conditions, but also in adverse operating or trading circumstances; (iv) assist the enterprise to achieve a creditworthy status to facilitate acceptance in capital markets; (v) protect the borrower's and ADB's financial interests; and (vi) provide a basis for monitoring by regulatory agencies of government, and ADB, of the financial performance of the enterprise. These are largely complementary objectives, but trade-offs may be required between financial and socioeconomic considerations.

3.6.1.3. Frequently, there is a need for a public sector enterprise to provide services to lower-income groups at or below the financial or economic cost. This raises issues of whether an enterprise and a sector should be responsible for cross-subsidization, whether the government should finance the costs through subsidies either to the enterprise or directly to the beneficiaries, and whether the enterprise should be allowed to set lower financial targets which recognize the inability of certain users to meet actual and/or marginal costs. In the latter case, the setting of lower financial targets should not normally be acceptable. If the financial targets are correctly designed their lowering can only risk the future reliability of the enterprise to provide a quality of service or product to all consumers. Such issues must be resolved as part of project preparation and

discussed in the RRP. Because financial performance indicators are used as the basis for measuring the foregoing, it is essential that the most appropriate indicator(s) be selected for each covenant for each project and enterprise.

3.6.1.4. The financial analyst and the project designers should ensure that, to the extent possible, financial systems covenants and financial performance covenants are complementary. They should be viewed as a comprehensive package designed to achieve an integrated financial performance by the enterprise's management.

3.6.1.5. A list of the proposed financial performance covenants, which have been subjected to sensitivity analyses (see section 3.5.4), should be provided together with the RRP.

3.6.1.6. Finally, to be consistent with a government's socioeconomic objectives, before the final formulation of financial performance requirements and of the related covenants, appropriate cost recovery principles and efficiency improvements, and the fiscal impact and distributional effects must have been weighed by the appraisal mission, particularly by the financial analyst.

3.6.1.7. Some indicators and covenants, such as a dividend limitation covenant, which are discussed in the following sections, are less extensively used by ADB than by other lenders. However, to ensure that a financial analyst is well informed on their construction and use, they also are described in the loan covenant section.

3.6.1.8. Whenever a date or month is needed in each of the succeeding model covenants, it is to be understood that an appropriate date or month should be inserted. This is to ensure that the review is conducted no later than the end of the first quarter of a fiscal year and such review should be in respect of the fiscal year in which the review is conducted and the succeeding year.

3.6.1.9. In cases wherein the borrowers may not have absolute control or discretion over the level of tariffs or where an independent regulator regulates the sector, operating covenants serve the same purpose. However, in addition to making applications to the regulatory authority to increase tariffs and charges, the enterprise may need to take alternative measures (such as tighter controls on operating expenditures) to meet such covenants.

3.6.2. Operating Covenants

3.6.2.1. Introduction to Operating Covenants

3.6.2.1.1. To assist the governments of its member countries in the efficient management of scarce resources, including the mobilization of revenues and savings, ADB recommends to borrowers that their public and private sector revenue-earning enterprises be required to meet a "reasonable portion" of their investment requirements from internally generated funds. Definitions of "reasonable portion" will vary between countries and sectors, frequently based on a government's policies for public sector EAs. It will also be dependent on the latest performance of the EA, particularly if its current financial performance is inadequate to support its operations, when the "reasonable portion" may need to be substantially increased above current performance.

3.6.2.1.2. The principal legal instrument through which ADB seeks to assure such a financial performance of a revenue-earning enterprise is a form of "operating covenant". The two principal forms of operating covenants are the Rate of Return and the Self-Financing Ratios. Each specifies the minimum annual financial performance to be achieved by a public sector enterprise in terms of either the rate of return on invested capital, or the contribution to investment requirements to be generated from the enterprise's operations.

3.6.2.1.3. Competition has been limited in the market(s) in which such enterprises operate (although there is evidence of an opening of many of these markets, at times as a result of related ADB projects or programs in the same sector). Levels of output prices may be adjusted by the enterprise's management board (for example, Public Boards of Management for Electric Power) or the Government may control or regulate tariffs and charges through the concerned sector ministry, the Ministry of Finance, or the Cabinet. In such cases, operating covenants serve to require a management board or a government to authorize tariffs and prices that provide for a satisfactory financial performance by the EA or enterprise. Where an independent regulator regulates the sector, the enterprise and/or the government may not have the same degree of discretion to adjust output prices or tariffs and charges. In such cases, operating covenants serve the same purpose, but the enterprise may need to take alternative measures (such as tighter controls on operating expenditures) to meet such covenant, in addition to making applications to the regulatory authority to increase tariffs and charges.

3.6.2.1.4. When the performance of the EA has been very poor, forms of operating covenants used include the operating ratio covenant, or the breakeven covenant. Depending on the ratio specified, the operating ratio covenant may serve a variety of

financial objectives, but it is usually limited in its application; for example, ensuring that earnings would at a minimum cover operating expenses including depreciation and, to the extent possible, debt service requirements in excess of depreciation. The breakeven covenant has similarly limited objectives intended to ensure the continued operating capability, solvency, and financial viability of the public sector enterprise. It is used where internally generated funds are not expected to contribute significantly to investment.

3.6.2.1.5. Operating covenants should contain provisions for periodic reviews by the enterprise of the actions required to achieve compliance and for furnishing the results of such reviews to ADB. Such reviews should be made at least annually before the beginning of a fiscal year to permit the enterprise to take timely action. In some cases where financial information is late in delivery, such reviews would need to be made on the basis of firm estimates and the specific forecasts noted for revision when final data is available. In highly inflationary economies, more frequent reviews (e.g., quarterly) may be needed.

3.6.2.2. Rate of Return Covenant

3.6.2.2.1. Under the rate of return covenant, an enterprise affirms that it will take all actions necessary, including changes in its tariffs, rates, and charges, for its revenues each year to cover operating expenses and taxes, if any, and to earn an agreed return on its invested capital. Section 4.4.6.2 provides guidance on the application of this covenant and a model covenant is provided in Knowledge Management (see section 7.12.1).

3.6.2.2.2. This covenant is most frequently applied to public sector enterprises constructing and operating projects in the sectors, which embrace agribusiness, electric power, ports, telecommunications, gas or fuel pipelines, water supply, and sanitation. The rate of return covenant is generally less suitable for sanitation and sewerage projects, because they have considerable difficulty in generating surpluses for investment or reserves and therefore these projects are normally combined with those of water supply as part of a water supply utility enterprise operation.

3.6.2.2.3. Competitive factors bear significantly on the financial performance of industry (including oil and gas). Therefore, a specific rate of return covenant is used infrequently in this sector. Instead, a less precisely defined form of the rate of return covenant, the general price covenant (see next paragraph), is usually used.

3.6.2.2.4. For railways, the rate of return on invested capital may be used but a commonly used covenant is the operating ratio.

3.6.2.3. Self-Financing Ratio Covenant

3.6.2.3.1. A self-financing ratio covenant, a model of which is provided in Knowledge Management (see section 7.12.2), directly addresses the need for sufficient internal cash generation to finance consistently an agreed proportion of investment requirements. Section 4.4.6.3 discusses the application of this covenant.

3.6.2.3.2. It is often used when a more direct approach to addressing cash generation requirements is considered desirable. Borrowers often favor the covenant because it is more readily understood, particularly by politicians and administrators; it is less costly to put in place and maintain; it avoids setting aside funds which may occur with the rate of return covenant, but it may be manipulated. This latter action may arise if a borrower deliberately decides to match its annual investment plans to whatever level of net revenues becomes available, to comply with the covenant. As an example, a borrower required to contribute 20% per annum to its investment program from internally generated revenues, can comply by financing $100 million from $20 million internally generated revenues, but is similarly in compliance by financing only $25 million of investments with $5 million of revenues.

3.6.2.3.3. Despite the selection of an extended review period (3 years) as the base for determining investments, the objective of the covenant can be avoided by a borrower failing to implement acceptable levels of annual investments, with the result that the revenues required to be generated internally can be allowed to fall correspondingly. The significant and likely impact of this default is a failure by the borrower to expeditiously execute the project, directly due to the reduction of the level of investment agreed between the borrower and ADB in the project implementation and financing plans.

3.6.2.3.4. A further problem associated with determining the self-financing ratio for a covenant is the often-uneven nature of investment programs (i.e., the pattern of investments can vary widely from year to year). A 3-year investment pattern for a public sector enterprise could be $10 million, $77 million, and $12 million. Such a program with a 3-year moving average would show for that period an average of $33 million. If the borrower was required to raise 30% from internally generated revenues annually, the result would be a surplus in year one of $23 million, a shortfall of $21 million in year 2, with parity arriving only in year 3. Under these circumstances, it may be difficult for a borrower to justify politically the raising of charges to yield a very large surplus in year one. While it may forecast to complete $77 million in year two, this may be treated as a dubious estimate by a government that is hardpressed for resources.

3.6.2.3.5. This example makes the case for smoothing several years' performances, but does not provide a ready or politically realistic justification for tariff and charges increases for an as yet unaccomplished investment program.

3.6.2.4. General Price Level Covenant

3.6.2.4.1. The model covenant provided in Knowledge Management (see section 7.12.3) illustrates the possible formulation of this type of covenant, the drafting of which should be carefully adapted to the circumstances of the particular project. The main purpose of the covenant is to set forth the agreed criteria applicable in determining prices, and to provide for consultation with ADB. Because it is not feasible to be precise, the criteria should be expressed in general terms.

3.6.2.5. Operating Ratio Covenant

3.6.2.5.1. An operating ratio covenant requires a public sector enterprise to set its tariffs and rates at levels that meet a specified operating ratio test (see section 3.6.1.9). The covenant may also state a minimum reduction in the operating ratio to be achieved by a specified date, as part of an agreed effort to improve operating efficiency and, in some cases, eliminate uneconomic services. Section 4.4.6.4 discusses the application of this covenant and a model is provided in Knowledge Management (see section 7.12.4).

3.6.2.5.2. This covenant is normally used only where it is not feasible to use a rate of return or cash generation approach—for example, for an entity which has been incurring substantial operating losses and whose objective is to eliminate such losses. It may also be used for a revenue-earning entity that is likely to be restricted by government from generating appropriate amounts of capital for future expansion purposes. It is usually necessary to supplement an operating ratio covenant with agreements by the concerned government to provide necessary funds to offset operating deficits until they are eliminated, to cover any deficiencies in meeting debt service obligations, and to assist in financing capital needs.

3.6.2.5.3. A variant, the working ratio covenant is sometimes used to emphasize the degree of coverage of cash operating expenses. It excludes depreciation and similar noncash items from expenses.

3.6.2.6. Breakeven Covenant

3.6.2.6.1. A breakeven covenant is designed to achieve financial viability in its most limited sense. There are two breakeven variations: revenue (accrual) breakeven; and cash

breakeven. This section, and the model covenant, refers to the former variation. The covenant requires the entity to take all measures necessary, including adjustments in its rates, for revenues to cover operating expenses, adequate maintenance, taxes if any, and the greater of depreciation or debt service requirements. The objective of this analytical tool is to measure a revenue-earning enterprise's efforts to breakeven, without losses and without providing any surpluses for investment, dividends, etc.

3.6.2.6.2. This approach is occasionally used for transportation and similar projects that follow the principle of funding their capital requirements predominantly through borrowings or grants, and also receive operating subsidies. It is infrequently used for the public sector, and is unlikely to be used for private sector projects. It compares the total revenues of an enterprise with the operating expenses plus the amount by which debt service requirements exceed the provision for depreciation.

3.6.2.6.3. The major risk in the use of this tool is that the borrower/EA may become complacent if a breakeven is achieved, and will fail to pursue more aggressive revenue-earning policy to provide for the gradual removal of all subsidies. This tool should not be introduced without a detailed justification at fact-finding, and in the RRP. A detailed breakeven analysis, displaying the effects of changes in volume on the breakeven point(s), and on profitability and cash flows should be developed.

3.6.2.6.4. The RRP should include a forecast of when a self-financing ratio should be introduced, and if debt service is not being met completely, or at all, the steps which the government and the enterprise propose to take to recover debt service from consumers through the charging system(s) of the enterprise.

3.6.2.6.5. Section 4.4.6.5 discusses the application of this covenant and a model is provided in Knowledge Management (see section 7.12.5).

3.6.3. Capital Structure Covenants

3.6.3.1. Introduction to Capital Structure Covenants

3.6.3.1.1. ADB uses four capital structure covenants: (i) debt service-coverage ratio, (ii) debt-equity ratio, (iii) absolute debt limitation, and (iv) capital-adequacy ratio. These covenants shape the capital structure by limiting the debt that may be incurred in relation to annual cash flows, the amount of equity capital, or absolute annual amount.

3.6.3.1.2. The capital-adequacy ratio covenant seeks to ensure that the equity of a financial institution will at least be adequate to meet its losses. Some form of debt

limitation covenant, usually either the debt service coverage or debt-equity ratio, should be used for projects involving revenue-earning entities. The debt limitation covenant complements an operating covenant to provide assurance that fixed debt service obligations will be met even when the broader financial objectives of the operating covenant are not.

3.6.3.1.3. Where an operating covenant is not appropriate, the debt limitation covenant serves as the main covenant promoting financial viability. Exceptions to the use of both types of covenant would be where an entity is financed predominantly through borrowing, and earnings may reasonably be expected always to be sufficient to meet debt service obligations; for example, where a public utility project, usually in the water supply or sewerage sector, funds virtually all of its capital requirements through borrowings and its financial performance is regulated by a breakeven covenant.

3.6.3.1.4. When dealing with entities that are likely to pay dividends, it may be advisable to use a dividend limitation covenant to complement a debt limitation covenant.

3.6.3.1.5. Capital structure covenants serve to assure the continued solvency and financial viability of revenue-earning enterprises by imposing prudent limits on their long-term borrowing. If an EA does not incur debt after entering into such a covenant, or refrains from further borrowing after a period of compliance with the covenant, even though the performance criteria agreed to in the covenant subsequently may not be complied with (for example if the debt service-coverage ratio falls below 1), the EA is not in default of the covenant until it again commences to incur debt.

3.6.3.1.6. The limits of a covenant should be set so as to enable debt service obligations to be met under adverse as well as normal business conditions, taking into account business and financial risks.

3.6.3.1.7. The distinction between debt and equity is not always clear. For instance, preference shares have many characteristics of debt while convertible notes might be treated as equity. Furthermore, derivatives and other financial instruments add layers of complexity. To this end, for the purposes of formulating covenants, a cautious approach should be taken by including any difficult-to-classify instruments in the definition of debt.

3.6.3.2. Short-Term Debt and Financing Leases in the Capital Structure

Short-Term Debt

3.6.3.2.1. ADB's standard definition of the term "debt", as applied in the design of capital structure covenants, is any indebtedness of the borrower maturing by its terms more than 1 year after the date on which it is originally incurred. This limits the application of the covenant to what is usually referred to on a balance sheet as long-term debt, and it excludes short-term debt usually shown on a balance sheet as part of current liabilities—though current maturities of long-term debt are part of current liabilities, by definition they are part of the long-term "debt" covered by capital structure covenants. This exclusion is appropriate when short-term debt is incurred as a source of working capital, since any limitation on such uses that is considered necessary can be covered by a liquidity covenant (see section 3.6.4). However, if the current portion of long-term debt is included in the definition of debt for purposes of a capital structure covenant, it should still be retained as a current liability for purposes of a liquidity covenant.

3.6.3.2.2. Consideration should sometimes be given to the need to refine the definition of "debt" or to use a supplementary covenant to cover some short-term loans that are: (i) being continuously rolled over, or (ii) used as "bridging funds" pending receipt of the proceeds of sale of equity or long-term debt. In the former case, if the amounts involved are likely to be significant, they should be included within the definition of debt covered by the covenant or be covered by a complementary limitation on short-term debt. In the latter case, the need will depend on the judgment as to the likelihood and timing of the replacement by long-term debt or equity. When in doubt, the overall objective should be used as a guide; viz., if the borrower's recourse to long-term debt needs to be restrained, no alternative facility in the form of short-term debt should be admissible, unless suitably defined, categorized and counted in part, or in total, as long-term debt for purposes of the covenant.

Financing Leases

3.6.3.2.3. Some institutions use finance leases to acquire the use of assets; the final ownership of the asset being dependant upon the terms of the lease.

3.6.3.2.4. A finance lease effectively places all the risks upon the lessee, and therefore it is reasonable to interpret the existence of such a lease and its associated lease payments as debt and debt service respectively, for purposes of the capital structure of EAs with which ADB works. Therefore, where an EA has entered into, or proposes to enter into finance

leasing agreements, the value of the lease and the annual lease payments should be included in the capital structure and the debt-servicing requirements of the agency for purposes of covenants in loan agreements.

Restricting the Use of Loan Funds

3.6.3.2.5. Capital structure covenants have the inherent limitations that although they are primarily intended to constrain the amounts of borrowing, they neither regulate the use to which any permissible borrowing can be put, nor ensure that existing debt will be serviced, if further borrowing is not incurred). Also, planning and implementation of new projects having substantial debt requirements sometimes delay the completion of ongoing projects, by preempting the use of scarce loan resources. If there is substantial concern that a revenue-earning entity is likely to embark on additional projects of questionable merit, a supporting covenant may be needed to restrict the enterprise to investments, which are economically justified and financially appropriate. Such limitations, however, are generally not needed or advisable, and should be employed only exceptionally and usually limited to the implementation period of the project.

3.6.3.3. Debt Service Coverage Covenant

3.6.3.3.1. Models of debt service coverage covenants are provided in Knowledge Management (see sections 7.13.1 and 7.13.2). The two key issues to be decided in formulating the debt service ratio covenant are (i) whether to base it on historical or forecast earnings, and (ii) what particular ratio to require as the minimum acceptable coverage. A good rule to follow is to allow the enterprise reasonable flexibility in making financing arrangements without requiring ADB's frequent approval for new borrowings. This factor must be balanced against the need to maintain prudent limits on the enterprise's debt service obligations. Section 4.4.7.6 describes the application of this covenant.

3.6.3.3.2. As a general rule, the covenant should be on the historical earnings basis if it is expected that the test could be met on this basis for the reasonably foreseeable future, or that the need to seek ADB approval for an exception would occur no more frequently that about once every several years.

3.6.3.3.3. The forecast basis should be used when it is likely that during a year there would be many occasions for incurring debt obligations, which would otherwise require prior ADB approval. This is particularly relevant for an enterprise that has a large investment program containing many projects, with long implementation periods and a need to arrange many borrowings to finance the program. It may also be advisable to use

the forecast basis in highly inflationary conditions to ensure that tariffs and rates are moved in concert with interest rates.

3.6.3.3.4. A ratio typically recommended for this covenant is 1.5, but it can vary from as low as 1.2 to as high as 2.0 or more depending on industry averages, or how stable or cyclical the earnings of the EA are judged to be. Where business risks are similar, the appropriate ratio would be lower when using historical earnings than with forecast earnings. However, it is essential that the financial analyst be prepared to justify the ratio recommended, particularly the excess requirement over 1.0. Any "mark-up" over 1.0 must be quantified in terms of the amount it is estimated to provide, and the proposed application of the funds (working capital, reserves, investment purposes, dividends, etc). It is not sufficient to either select a "comfortable" or noncontroversial figure, or to continue using a ratio already in a legal agreement for previous operations of the borrower. Section 4.4.7.6 describes the application of Version A (Historical orientation) and Version B (Forecast orientation) of the Debt Service Covenants.

3.6.3.3.5. Capital structure covenants have a limited use, in that they are not intended to perform as revenue-generating covenants. They serve only to restrict the borrowing capacity of EAs. The debt service coverage ratio covenant may be adapted to include a forecasting provision that would require an EA to institute mandatory adjustments to tariffs, or rates (if within its discretion, or to make the necessary applications for increases, if not). ADB staff should seek the advice of OGC before discussing with a borrower/EA the possible application of such a modified capital structure covenant.

3.6.3.4. Debt:Equity Ratio Covenant

3.6.3.4.1. The debt:equity ratio covenant is simple to understand and administer, and is consistent with the need to maintain a sound capital structure without unduly restricting the entity's ability to make its own routine financing decisions. It is pertinent to note that for this form of covenant, debt need not be defined in the same way as for the debt service coverage covenant. For the latter, the definition applies to the entire amount of the long-term debt, and the applicable debt service obligations, as of the date of signing the contract for the debt. Section 4.4.7.7 describes the application of this covenant and a model is provided in Knowledge Management (see 7.13.3).

3.6.3.4.2. For the debt-equity ratio, the definition of debt may be framed in terms of debt outstanding. This provides the entity some flexibility in phasing additions to its equity capital to match the timing of expected drawdowns of debt.

3.6.3.4.3. Defining debt in terms of the amount outstanding is appropriate for the debt: equity ratio covenant only when it is deemed feasible for an enterprise to apply the test each time it intends to draw down debt and, when necessary, call on its shareholders for additional equity capital before the increase in debt outstanding. This is most likely to be the case for financial intermediaries, which can generally limit their commitments to lend funds to the availability of resources in hand. Application of the drawdown concept is likely to be inappropriate in other sectors where use of borrowed funds cannot readily be interrupted if there is a failure to meet a debt limitation test for a particular drawdown of a loan. For similar reasons, application of the drawdown concept is generally not appropriate or feasible under the debt service coverage test.

3.6.3.4.4. The debt: equity ratio covenant is occasionally used for established entities when the borrower has overriding objections to the use of a debt service coverage covenant. Since the major shortcoming of the debt: equity ratio covenant is that it disregards the terms and conditions of the debt and their impact on the debt service burden, it may be advisable when using this form of covenant to add a limitation on medium-term debt; e.g., limiting the amount of debt incurred with a term of issuance of less than 10 years to some 10% or 15% of total capitalization.

3.6.3.5. Debt Limitation Covenant

3.6.3.5.1. An absolute debt limitation covenant limits the amount of debt that may be incurred annually to a stated amount (expressed in absolute terms or as a proportion of the total capitalization) and requires ADB concurrence before exceeding this limit. This covenant is used infrequently and only where debt service coverage or debt-equity covenants cannot be applied. Consequently, no example is provided, as each covenant should be uniquely drawn. Section 4.4.7.8 describes the application of this covenant.

3.6.3.5.2. The typical case when this covenant is used involves a public authority whose capital structure consists entirely or predominantly of debt, because of statutory requirements that all externally provided investment funds be advanced in the form of borrowing from government.

3.6.3.5.3. The limit for new debt is fixed at a relatively small amount which, together with the internally generated funds which are likely to be available, allows the borrower to carry out minor plant replacements or improvements, but which requires the borrower to consult with ADB whenever it plans a major expansion.

3.6.3.5.4. Although this form of covenant is simple to administer, it has substantial disadvantages. It is related to a stated amount of debt without consideration of its terms

and without taking into account changes in an enterprise's financial requirements or debt-servicing capacity; and it severely restricts an enterprise's freedom of action.

3.6.3.5.5. A preferable approach would be to agree that a substantial part of any loan by the government to the public sector enterprise would be subordinated and treated as quasi-equity capital, thus permitting the use of either the debt service coverage or debt equity ratio covenants. The project team should ensure that it is legally possible to create a subordinated debt. There may be restrictions or regulations of the government, which affect its ability to have its debt treated as quasi-equity.

3.6.3.6. Capital Adequacy Ratio Covenant

3.6.3.6.1. This covenant is normally applied to FIs. It is used to compare the adequacy of an institution's available equity to meet losses that may be incurred by losses of financial assets. For this purpose, equity is defined in a similar manner as in the debt-equity ratio covenant, but with the addition of any provisions for bad and doubtful debts (loss provisions). However, the definition of assets will need to be defined on an institutional basis. Section 4.4.7.9 describes the application of this covenant and a model is provided in Knowledge Management (see 7.13.4).

3.6.3.6.2. Local market and lending conditions will materially affect the quality of assets and staff must reach agreement with the borrower on the risk factors applicable to each class of assets.

3.6.3.6.3. This classification of risk by reference to groups of assets-at-risk may need to be varied over the life of a loan, and therefore it will be necessary to introduce regular reviews to determine any required revisions from time to time. In addition, judgment will be needed to determine a safe margin above the potential loss level of assets-at-risk prescribed in the covenant. Normally this is unlikely to be less than 1.00, when equity will at least absorb all potential losses, as calculated in accordance with methods specified in minutes to loan negotiations.

3.6.4. Liquidity Covenants

3.6.4.1. Introduction to Liquidity Covenants

3.6.4.1.1. Liquidity covenants are intended to assure that an enterprise maintains sufficient working capital (i.e., an excess of current assets over current liabilities) to meet its current obligations in a timely manner and conduct its operations effectively, without financial constraints.

3.6.4.1.2. Their limitations are that the data used for the ratio is a "snapshot" figure, usually as at the end of a fiscal period—and, as such, are capable of manipulation. They are generally used only when working capital requirements are significant, as in the case of most industrial and agro-industrial projects, where the enterprise's management may use limited resources to fund capital expenditures to the detriment of operating expenses. By contrast, these covenants are not normally needed in projects where working capital needs may be relatively small, such as utilities and railways.

3.6.4.1.3. The cash needs of such projects are adequately covered through operating covenants, supplemented, as necessary, by other covenants dealing with working capital issues, such as timely collection of accounts receivable.

3.6.4.1.4. The current ratio and quick ratio covenants require the borrower to maintain a specified minimum liquidity ratio and to undertake corrective actions if the actual ratio falls below the prescribed level. The quick ratio covenant excludes the cost of inventories at the date of the balance sheet.

3.6.4.2. Current Ratio Covenant

3.6.4.2.1. The advantages of the current ratio covenant are that: (i) it is simple and easily understood by borrowers, (ii) it is based on an accurate and objective test, (iii) it can be based on readily defined accounting principles and calculated from standard financial statements, and (iv) in most cases it provides a fair representation of short-term solvency of the borrower. Section 4.4.8.2 describes the application of this covenant and a model is provided in Knowledge Management (see 7.14.1).

3.6.4.2.2. However, this covenant will only be an adequate test of liquidity if the covenant design provides for: (i) periods of falling sales and consequent declining internal cash generation, when the borrower may find it difficult to convert inventories to cash at reasonable prices; (ii) a suitable analysis of inventories, because some items may be nonsaleable (for example, they may be spare parts or obsolete products not written off) and because a minimum level of inventories must be retained to continue operations; (iii) a suitable analysis of accounts receivable; and (iv) seasonal variations in working capital requirements and interim peaks for debt maturities during the year. These problems, although serious in some projects, can be overcome either by making appropriate allowances when determining the acceptable ratio, or by using the quick ratio test. The borrower should be asked to calculate and confirm compliance with the current ratio at intervals throughout the fiscal year (e.g., in quarterly or semiannual reports; or whenever requested by ADB).

3.6.4.2.3. This covenant requires consistent and close monitoring to ensure that unacceptable management and accounting practices are not being followed to give the appearance of compliance. For example, accounts receivable may be overstated because of inadequate provisions for bad debts.

3.6.4.2.4. In some instances, it may be necessary to introduce supporting covenants that specifically address such key issues as the size of short-term debt, or levels of inventories and receivables.

3.6.4.3. Quick Ratio Covenant

3.6.4.3.1. The quick ratio covenant is similar to the current ratio covenant, except that inventories are excluded, to focus on the most liquid items in the financial statements. Section 4.4.8.2 describes the application of this covenant and a model is provided in Knowledge Management (see 7.14.2).

3.6.4.3.2. It gives a much clearer view of the "cash" position of the enterprise. After taking that benefit into account, this covenant still has the shortcomings associated with the current ratio.

3.6.4.3.3. While any selected covenant must be framed to reflect the objectives of the borrower and the project, it is probably desirable when a decision has to be made between the current and quick ratios, to select the latter and to require at least a three-monthly submission of information; and introduce a performance covenant to address control of inventories. In this way the cash position can be examined closely and regularly.

3.6.4.4. Dividend Limitation Covenant

3.6.4.4.1. The dividend limitation covenant with a dividend limitation test prohibits the borrower from declaring a dividend the payment of which would cause the current ratio (or quick ratio) to fall below a specified minimum. Section 4.4.8.3 describes the application of this covenant and a model is provided in Knowledge Management (see 7.14.3).

3.6.4.4.2. The minimum level of current ratio specified in this covenant may be higher than the minimum required under the current ratio covenant discussed in section 3.6.4.2 because decisions on whether to pay dividends are often discretionary, and a stricter standard of prudent financial management can thus be applied to this context. Therefore, the borrower is asked not to make voluntary payouts of cash to its stockholders until it has taken further measures to establish and maintain the liquidity essential for operations.

3.7. ADB Reports

3.7.1. Introduction to ADB Reports

3.7.1.1. A financial analyst has the responsibility to ensure that ADB's reports and documentation relating to a project, from its inception through to its evaluation, represent the facts and best professional judgments of the analyst with respect to all aspects of financial management, financial appraisal, accounting, financial reporting and auditing with respect to the project, the EA, the borrower, and all concerned organizations and persons.

3.7.1.2. The objective is to ensure that the cycle of investment lending is well documented throughout, with adequate justifications for all actions to be taken or actually taken.

3.7.1.3. Given the wide range of lending operations and the variety of borrowers, their institutions and the actual projects, it is inevitable that, from time to time, some innovative documentation may be necessary to describe and justify procedures undertaken.

3.7.2. Project Preparatory Technical Assistance Stage

3.7.2.1. A critical element of preparation is identifying and comparing technical and institutional (and financial) alternatives for achieving the project's objectives. Preparation typically requires feasibility studies that identify and prepare preliminary designs of technical and institutional alternatives; compare respective costs and benefits; and examine the most viable option from technical, financial, and economic viewpoints.

3.7.2.2. The above assessments for project financial sustainability and viability as well as financial management capacity should generally be performed during ADB's PPTA stage (but checks should be made for any changes in project cycle or definitions to the "Business Processes for the Reorganized ADB"). As such, the financial analyst must thoroughly review the PPTA TORs to ensure that they reflect these requirements.

3.7.2.3. For the financial analyst, to contribute to the RRP, this means researching possible first-stage project costs, working with technical experts to prepare cost estimates (including rough contingencies) and preparing initial cost analyses. To support this work, the financial analyst should review the prospective EA's capacity to develop and maintain adequate project/EA accounts, and the availability of suitable auditing skills to provide timely audit reports and opinions.

3.7.2.4. If the preliminary review indicates that the project appears "bankable" and addresses sector priorities, the necessary data to support detailed technical, financial, and economic analyses of alternative options should be collected and analyzed. This step should identify a preferred option, for which an indepth feasibility analysis will be conducted and a preliminary project design prepared. The preliminary design will be reviewed by ADB staff and, when finalized, will provide the basis for design studies. ADB staff will appraise these studies. It is important for ADB to ensure that the preparation report format conforms to the RRP format and contains all information required for appraisal.

3.7.2.5. To assess the viability and sustainability of the project, internal ADB reviewers (that may include a Management Review Meeting (MRM) and a Staff Review Committee (SRC)) will, among other things, examine and consider: (i) the realism of the project cost estimates; (ii) the realism of the financing plan (which must indicate the contributions of the beneficiaries, ADB and the cofinanciers, if any); (iii) the soundness of the proposed accounting and internal control procedures; (iv) the workability of organizational arrangements for project implementation, as well as monitoring and evaluation mechanisms; and (v) the realism and implications of the financial, economic, and risk analyses.

3.7.2.6. In cases where the borrower has asked ADB (or other agencies) to assist in project preparation, the financial analyst's responsibilities will depend on the skill and experience of those who have prepared the project's financial aspects. At a minimum, the analyst is expected to ensure that all issues are examined comprehensively and that proposed solutions are realistic, and to report accordingly.

3.7.3. Report and Recommendation of the President

3.7.3.1. RRP Contents (Project Loan)

3.7.3.1.1. The following table sets out the contents of an RRP (for a project loan) with explanations of the financial aspects. The Knowledge Management section of these Guidelines provides a general checklist for reviewing the financial aspects of an RRP (see section 7.6).

I. THE PROPOSAL
II. INTRODUCTION
III. BACKGROUND
IV. THE PROPOSED PROJECT
    A. Rationale

B. Objectives and Scope	
C. Technical Justification	
D. Cost Estimate	Section 3.4.3 provides guidance on preparing project cost estimates. These should be presented in this section in a summary form. Additional details should be provided in an appendix.
E. Financing Plan	Section 3.4.6 provides guidance on preparing the financing plan. It should specify the amounts of the foreign exchange and local currency costs financed by ADB, the government, and other agencies, including in-kind contributions by beneficiaries, if any. Indicate provisions for contingencies, the nature of the government's contribution, and the government's assurance concerning any shortfall in the finances required. Provide reasons for changes, if any, from ADB's guidelines. Mention any cofinancing arrangement (concluded or expected). Indicate (in the appendix) the magnitude of physical contingencies as percentage of the base costs and of the inflation factors used for both the foreign exchange and local currency costs in estimating price contingencies. Justify why local cost financing exceeds the percentage limits for the country concerned, based on country and project considerations. Include other standard references to the borrower of the loan, the maturity and grace periods, as well as the lending rate.
F. Implementation Arrangements	Describe the following features and other related aspects of project implementation according to the relevant OM sections: (i) procurement; (ii) consulting services; (iii) disbursement policies; (iv) reports, accounts, and audit (including the project completion report); (v) retroactive financing (including its justification); (vi) benefit monitoring and evaluation (BME); and (vii) lending and relending policies. Minimize routine details in the main text, but explain special features, particularly departures from the norms, if any. Give tabular presentations with brief descriptions, where appropriate.
G. Executing Agency	Where ADB has previously lent to the EA, information on compliance with financial, audit and any operating covenants should be provided. Subsequent analyses in the Chapter should emphasize comparisons of covenanted

forecast performance with actual performance. Assess the EA's past record in project implementation (where applicable), especially its involvement in ADB-assisted projects and its capability with regard to the project. Give particular attention to institutional capability in the case of a sector loan proposal. The assessment of the institutional capability in Chapter III (Background) should demonstrate that appropriate sector policies and institutions are, or will be, in operation. Analyze the EA's capacity in this section.

Give a detailed description of an EA only when it is engaged in an ADB project for the first time, when it is the beneficiary of institutional strengthening measures, or when it is the borrower. Otherwise, briefly describe the EA's capability in the main text, and provide details on its strengths and weaknesses and its financial evaluation in an appendix. The appendix may include an organization chart. Where applicable, give a detailed financial evaluation of the EA.

When TA is provided to address an EA's institutional weakness, provide a brief statement on the need addressed, with a cross-reference to the more detailed description of the TA under the Technical Assistance subhead in this chapter.

H. Environmental and Social Measures

I. Technical Assistance

J. Policy Issues

V. PROJECT JUSTIFICATION

A. Financial and Economic Analyses

Focus on general financial and economic analyses without repeating information from Background, Rationale, or Technical Justification. Give a realistic assessment of the "with" and "without" project situations. Follow the standard ADB methodology for financial and economic analysis and for sensitivity and risk analysis. Where applicable, compare the projected financial and economic internal rates of return with those achieved in similar projects post-evaluated by ADB.

The various project risks and related issues should be addressed in this section. Risk analysis need not be confined to data assumed in the economic analysis.

Institutional or other constraints will also constitute a risk that should be addressed by the project and discussed after Implementation Arrangements.

B. Environment
C. Social Dimensions
D. Impact on Poverty
E. Risks

VI. ASSURANCES
VII. RECOMMENDATION
APPENDIXES
Cost Estimates
Financial and Economic Analyses
Financial Statements (of public utilities, incorporated companies, and other entities)

3.7.3.2. Past Financial Performance

3.7.3.2.1. Whenever the borrower or EA of a proposed loan is an existing agency, its past financial performance should be analyzed for at least the most recent 2 completed fiscal years, preferably based on audited financial statements for those years. The text discussion should note significant conclusions reached on past financial performance and the factors contributing to satisfactory or unsatisfactory results. Detailed analysis should center on any problem areas in the financial statements—balance sheets, income statements, and cash flow statements.

3.7.3.2.2. For textual presentations, a financial summary table for the balance sheets, income statements and cash flow statements is often the most useful and space-saving form. However, separate summary tables are acceptable, particularly when used to reinforce a specific discussion in the text. These statements, where presented in the text in summary table form, should cover a period long enough to give an adequate picture of recent financial performance. In most cases, this will be 2 or 3 years, based on audited accounts for the fiscal years concerned.

3.7.3.2.3. For repeat borrowers/EAs, the period should cover from the date of signing of the last loan to the date of fact-finding and appraisal, with a table to show actual performance with the forecast in the previous RRP.

3.7.3.2.4. The subject headings in the summary tables may vary depending on the type of project and the particular focus of the text discussion. In general, however, the tables should highlight important relationships regarding the financial structure of the enterprise, its ability to generate funds, and its profitability.

3.7.3.3. Present Financial Condition

3.7.3.3.1. An EA's current condition may warrant separate discussion in the text, or may be described when referring to the past financial condition. If the analysis of the present financial condition is based on current budgets and not on confirmed actual performance, the report should comment on the validity of the data used. If these data are likely to form the basis for financial forecasts during the project period and thereafter, and if the analyst is unable to obtain firm knowledge of the present financial position, the projected data should be subjected to sensitivity analysis, using, as far as possible, data on confirmed past performance as bases for measuring and forecasting.

3.7.3.3.2. The discussion of the present financial position should highlight the strengths and weaknesses of the EA's finances and its performance of relevant activities. The reasons for weaknesses should be fully discussed along with proposed remedies for resolving these.

3.7.3.3.3. If necessary, requisite performance and remedial undertakings should be sought in financial covenants with staff judgments on the potential effectiveness of such remedies explained in the text.

3.7.3.4. Cost Recovery and Profitability

3.7.3.4.1. Where cost recovery and/or profitability are primary objectives, the financial consequences of policies, strategies, and practices relating to the entity's operations or trade should be set out, for instance: (i) policies on recovery of costs of its products and/or services, (ii) tariffs and charges levied, (iii) systems of establishing costs of products and/or services, (iv) inventory controls, and (v) possibility and extent of external regulation (e.g., by government).

3.7.3.4.2. Discussions of detailed costs, cost recovery and detailed revenue yields should be designed to support the overall financial analysis and any special issues, such as marginal cost pricing, which may be presented elsewhere in the report.

3.7.3.5. Other Strengths and Weaknesses

3.7.3.5.1. Finally, this section of the report should review any aspects of an EA's current financial affairs not discussed elsewhere. These could include: (i) financial management and accounting systems or financial reporting and auditing procedures to the extent that they are not reviewed in the implementation chapter; (ii) financial relationships between the borrower, the EA, and other involved EAs; (iii) financial

aspects of an agency not reviewed and the reasons for their exclusion; or, (iv) in the case of a recently established agency, the staff's judgment on the feasibility and reliability of a borrower's proposals for financial operation of the EA.

3.7.3.6. Future Financial Performance

General Content

3.7.3.6.1. This review may begin with an analysis of the financing plan for the project and the EA's operations and investment program over the project period. Irrespective of the presentational style of the section and the sectoral format used, the substantive discussion should focus on the agency's estimated future earnings and financial position.

Financing Plan

3.7.3.6.2. A principal objective of financial analysis is determining the adequacy of a financing plan. The summarized content of these plans should be consistent with data in the cash flow statement.

Projected Financial Forecasts

3.7.3.6.3. Projected balance sheets, income statements, and cash flow statements of the EA should be shown in summary tables, to permit comparisons between past and forecast data and to allow for ready identification of trends. The data should be consistent with demand and disbursement forecasts elsewhere in the report. Forecasts should normally be made for a period covering the duration of project construction up to at least the end of the third year of normal capacity operations. The aim is to provide adequate data on the profitability and debt servicing ability of the enterprise in relation to the investments to be undertaken under the project.

3.7.3.6.4. Forecasts should normally be made until a "steady state" has been reached, reflecting normal utilization of project facilities. If a substantial financial change is forecast within the life of the loan that would seriously affect the "steady state", the text should specifically discuss the impact of such a change on the financial condition of the EA. If possible, the projections should be extended to cover such an event; for example, the completion of a delayed and parallel dam-building project for a mixed hydro/coal-burning power utility some 7 years after project completion of a coal-fired station, that could reduce the coal consumption until power consumption demand again exceeded the hydro station's capacity.

3.7.3.6.5. The text should generally discuss: (i) financial objectives of the project and, where applicable, the project entity; (ii) future cost recovery/profitability, including assumptions made about physical volumes, prices, tariffs and costs, etc.; (iii) systems of cost recovery, tariff regulations, user charges, and credit provision; (iv) ability to meet debt service obligations and to finance capital expenditures; (v) adequacy of future financial position in relation to capital structure (debt as a percentage of total capitalization) and working capital (quick or current ratio); (vi) major risks and uncertainties not discussed in the Economic Analysis discussion which might affect the forecasts presented; and (vii) recommended covenants, action plans, and any measures judged necessary for the improvement of financial performance. These might include covenants on minimum levels of earnings, operating cost reductions, or restrictions on the incurrence of additional debt, the establishment of revised or new tariffs, or of targets to be achieved by the borrower.

3.7.3.6.6. Financial criteria to be applied to subprojects or components that will be appraised and if appropriate, approved after Board presentation of the main project, should be established and discussed the main body of the RRP and, if necessary, detailed also in an Appendix.

Proposed Cost Recovery and Potential Profitability

3.7.3.6.7. In the case of established EAs, this review may continue the discussion of past and present performance. The text should describe the agency's practices or proposals (either agreed or to be confirmed in legal agreements) at least during the project period and the early operating period. The discussion of cost recovery should also indicate the expected real increases in costs and the required real increases in tariffs during the forecast period. Any tariff studies to be undertaken should be noted. Justification of the use of subsidies should be mentioned, and a program presented for their reduction or elimination over time.

3.7.3.6.8. Financial objectives, together with an operating covenant or other financial covenants designed to promote their achievement, should be explained. Specific indicators to be used in monitoring financial performance should be explained, if necessary. The performance of comparable institutions in the sector and country should be briefly reviewed to establish any key factors which could affect cost recovery and profitability in case where there is no past performance on which to base projections. In such cases, inputs, outputs, and performance estimates will be based entirely on assumptions and targeted performance. It is essential, therefore, to express a judgment on the adequacy and reliability of the factors on which the forecasts are based.

3.7.3.6.9. This section of the RRP should also discuss the impacts on an agency's forecast financial statements of changes to prices and/or tariffs (and related government policies). The rationale for pricing of goods and/or services to be provided under the project and actual or potential government intervention in the price or rate-making process may be relevant to economic analysis and project justification. These may be discussed in the economic analysis section of the RRP.

3.7.4. Miscellaneous ADB Reports

3.7.4.1. Introduction to Miscellaneous ADB Reports

3.7.4.1.1. ADB requires information on the financial performance and status of EAs, and on their financial management, accounting and auditing systems at various times in the project cycle. Typical reference points are: (i) Fact-finding and appraisal mission Back-to-Office reports with appendixes, including Memoranda of Understanding with borrowers and EAs; (ii) Project Briefs with appendixes; (iii) Management Review Meetings; (iv) Staff Review Committee Meetings; (v) Project Administration back-to-office reports (vi) PAC Meetings; and (vii) PCR and PPAR preparation.

3.7.4.1.2. The structure, format, and content of the reports to be made for these meetings and for the permanent record (the Project File) will vary according to the objectives of the particular mission or meeting.

3.7.4.1.3. The Project Administration Instructions (PAIs) provide considerable guidance on the principles and extent of the financial and institutional information required. The following PAIs should be reviewed to ensure that the requisite financial and institutional data are made available as required:

PAI 1.01 Initial Project Administration Activities
PAI 1.05 Preparatory Actions – Project Administration Memorandum
PAI 3.01 Preparatory Work and Procurement Supervision
PAI 5.07 Project Administration Actions – Project Cost Overruns
PAI 5.08 Project Administration Actions –Local Cost Financing by Borrowers
PAI 5.09 Submission of Audited Project Accounts and Financial Statements
PAI 6.01 Internal Procedures and Reports – Project Administration Reviews
PAI 6.02 Internal Procedures and Reports – Project Administration Missions
PAI 6.03 Internal Procedures and Reports – Reports of Project Administration Missions
PAI 6.05 Internal Procedures and Reports – Project Performance Report
PAI 6.07 Internal Procedures and Reports – Project Completion Report

3.7.4.1.4. The compilation of information, including financial analysis and financial forecasting, for the various meetings and reports listed in this subsection should be based on the advice and guidance provided throughout these guidelines.

3.7.4.2. Project Completion Report

3.7.4.2.1. PAI 6.07 governs the preparation of Project Completion Reports (PCRs). PCRs should be prepared by the EA. A final PCR is then prepared in accordance with PAI 6.07. In some cases, PCR preparation may require information and technical expertise from a financial analyst.