ASIAN DEVELOPMENT BANK

GUIDELINES FOR THE PREPARATION

OF PROJECT PERFORMANCE AUDIT REPORTS

September 2000

ABBREVIATIONS

ADB	—	Asian Development Bank
AOTA	—	advisory and operational technical assistance
CAP	—	country assistance plan
COS	—	country operational strategy
DMC	—	developing member country
EA	—	executing agency
ECG	—	Evaluation Cooperation Group
EIRR	—	economic internal rate of return
FIRR	—	financial internal rate of return
HS	—	highly successful
OA	—	overall assessment
O&M	—	operation and maintenance
OEO	—	Operations Evaluation Office
PCR	—	project/program completion report
PPAR	—	project performance audit report
PPMS	—	Project Performance Management System
PPR	—	project/program performance report
PS	—	partly successful
RRP	—	report and recommendation of the President
S	—	successful
TA	—	technical assistance
TCR	—	technical assistance completion report
US	—	unsuccessful

CONTENTS

I. GENERAL

A. Introduction

1. These guidelines replace the *Guidelines for Preparation of Project Performance Audit Reports* (PPARs) circulated to the Board of Directors in 1992. Since 1992, there have been various changes in Asian Development Bank (ADB) operations, and in the concerns of the aid community, that have implications for operations evaluation and have necessitated revision of the guidelines. These changes include the following:

(i) growing concern with ensuring that ADB's operations in any developing member country (DMC) are consistent with the DMC's country operational strategy (COS), country assistance plan (CAP), and national development priorities;

(ii) increasing use of the logical framework in project planning, design, and implementation;

(iii) increasing role of ADB's advisory technical assistance (TA) and "soft" components of loan projects aimed at capacity building and policy frameworks;

(iv) explicit use in the aid community of various criteria of project success in addition to economic efficiency, particularly the economic internal rate of return (EIRR);

(v) widespread adoption and use by aid institutions of four overall assessment categories rather than the three categories under ADB's 1992 guidelines; and

(vi) requests from Board members and donor countries for ADB to adopt evaluation approaches that make project success ratings more comparable with other multilateral development banks.

2. Evaluation is an integral part of ADB's project cycle. Evaluation has two major dimensions: (i) self-evaluation by the operations departments responsible for preparing and implementing projects and programs, and (ii) independent evaluation by the Operations Evaluation Office (OEO). Self-evaluation comprises a number of instruments, including project/program performance reports (PPRs) and midterm review reports prepared during the course of project implementation, project/program completion reports (PCRs) and TA completion reports prepared at the end of project or TA implementation, and country portfolio performance reviews. The PPAR presents OEO's evaluation results for an individual project or program and is a basic instrument of independent assessment. OEO's evaluations are done several years after implementation has been completed and operations have commenced. The results presented in PPARs are used in other evaluation studies including impact evaluation, reevaluation, and special evaluation studies, which focus on particular issues or subjects of broader relevance to ADB's operations, policies, and procedures.

3. Preparations for evaluation start at the project formulation stage with the establishment of a project's logical framework, which specifies, along with key project design assumptions, a hierarchy of objectives, the indicators of success with their targets, and methods for measurement. The key elements of the logical framework form the basis of the PPR, which is the main periodic report produced during project implementation and forms part of ADB's Project Performance Management System (PPMS). The PPMS, primarily through the PPRs, provides information needed for self-assessment and contributes to later preparation of the PPAR.

4. OEO targets for evaluation 40 percent of completed projects for which PCRs are available with at least three years of operational history. The PPAR, which presents the results of the evaluation, focuses on the project's achievements and their sustainability; an overall assessment of project performance; and key issues, lessons, and follow-up recommendations for the future.

5. The findings and conclusions in PPARs and PCRs are summarized and synthesized each year in the Annual Review of Evaluation Operations. Self-evaluation and OEO studies provide input to the Evaluation Information System, which is ADB's online database for evaluation findings and lessons.

6. Compared with the 1992 guidelines, this new edition of the guidelines includes a substantial revision of the criteria for rating project success. This change reflects initiatives taken by the Evaluation Cooperation Group, consisting of the heads of evaluation units in the major multilateral development banks, to harmonize evaluation practices and standards. These guidelines are also broadly consistent with the principles for evaluation of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD).[1]

B. Borrower and Beneficiary Participation in Evaluation

7. The borrowers' and beneficiaries' sense of ownership is a necessary ingredient to ensure high project quality. Increasingly, therefore, ADB has been involving borrowers and executing agencies (EAs) in evaluation. Most loan documents now require that the borrower and/or EA prepare a completion report and submit it to ADB. In addition, OEO has provided TA to a number of DMCs to build evaluation capacity both at the central and line agency levels. OEO evaluators now regularly seek the views of beneficiaries in assessing lessons and impacts of projects.

C. Timing, Format, and Finalization of PPARs

8. Normally a PPAR is prepared after a project has been in operation for a sufficient length of time for enough experience to be accumulated to provide the basis for a reasonable estimate of the project's future progress and achievements. This is usually about three years after completion of project implementation or about two years after the PCR has been circulated to the Board. By this time, the EA will have had sufficient time to implement any PCR recommendations.

9. The style and format of the PPAR adhere to ADB's *Handbook of Style and Usage*. A PPAR is normally 16 to 18 pages of single-spaced text excluding appendixes. Only appendixes of direct relevance to the text are included. The PPAR uses the terminology and structure of the logical framework.[2] Therefore, the PPAR uses the term "output" to describe those aspects that were to be generated by the project, such as a road or service capability, and that approximately correspond to the project scope in the report and recommendation of the President (RRP).[3] The term "purpose" is used to describe the immediate objectives or the level

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[1] OECD. 1992. *Development Assistance Manual: DAC Principles for Effective Aid.* Paris: OECD.

[2] The use of the logical framework is an ADB requirement as specified in *Staff Instruction on the Use of the Logical Framework for Bank-assisted Loans and Technical Assistance Projects* issued by Vice-President (East) and Vice-President (West) in their joint memo of 10 September 1999. Refer also to Saldanha, C. and J. Whittle. 1998. *Using the Logical Framework for Sector Analysis and Project Design—A User's Guide.* Manila: ADB.

[3] "Scope," however, is normally described in terms of inputs or cost components in appraisal reports and RRPs (para. 18).

of achievement that the project is to deliver, and "goals" refer to the higher order and longer term impacts.

10. There is a general uniformity of format of PPARs for consistency, as well as for ease of locating information. However, there may be minor variations to suit the specific needs of different sectors and projects. These guidelines are intended to assist in report preparation. They do not limit the responsibility of evaluators to exercise their best professional judgment, to avoid redundancies and repetition, and to focus attention on significant issues. To avoid duplication of effort and at the same time provide a self-sufficient review and assessment of a project, the PPAR may freely quote relevant portions of the PCR.

11. A draft PPAR is initially reviewed within OEO. The draft is then circulated to concerned departments and offices of ADB, and forwarded to the borrower, the EA, and other relevant agencies. Comments received are taken into account in finalizing the PPAR. An attempt is made to reconcile any differences in views or overall assessment of a project. However, any disagreements with other departments and offices of ADB, the borrower, and the EA on substantive issues are reported briefly in a footnote.

D. Dissemination of Reports and Results

12. All evaluation reports and studies are circulated to the Board of Directors for information and, thereupon, are made freely available to the public.[4] To facilitate access to the lessons of experience and enhance transparency, an extensive Evaluation Information System is available both within ADB (http://intra-oeo/) and through an Internet site (http://oeo.asiandevbank.org/) that enables downloading and searching of evaluation reports.

[4] ADB's policy on disclosure of information permits distribution of all evaluation reports beginning in 1995 except those relating to ADB lending to and investment in projects in the private sector.

II. CONTENT OF A PROJECT PERFORMANCE AUDIT REPORT[5]

13. The formats of the PPAR cover and other preliminary pages are given in Appendix 1. Chapter headings are as follows:

Executive Summary
I: Background
II: Planning and Implementation Performance
III: Achievement of Project Purpose
IV: Achievement of Other Development Impacts
V: Overall Assessment
VI: Issues, Lessons, and Follow-Up Actions

A. Executive Summary

14. This provides a summary of the overall concept and content of the project, as well as the most relevant lessons learned and significant findings and conclusions, both positive and negative. The overall assessment rating is also given. The executive summary should be able to convey a message to the reader. It is normally two to three pages. See specimen in Appendix 2.

B. Chapter I: Background

15. This chapter provides an overall historical perspective and factual description of the project as approved and completed. It contains the following subsections:

- Rationale
- Formulation
- Purpose and Outputs
- Cost, Financing, and Executing Arrangements
- Completion and Self-Evaluation
- OEO Evaluation

16. **Rationale** briefly describes the need for the project at appraisal in the context of the country's development program and ADB's COS and CAP, including any associated advisory and operational TA (AOTA); the opportunity and potential for development; and the project's goals (e.g., improved health, reduced poverty, better environment, increased family incomes, or economic growth).

17. **Formulation** identifies the project preparatory TA; its relevance and importance for project preparation; and the extent to which the feasibility study, if any, constituted an adequate basis for project appraisal. If there was no feasibility study, this section describes how the project was formulated.

18. **Purpose and Outputs** describes the project succinctly, including any associated AOTA, employing ADB's accepted definitions of purpose, outputs, and inputs as used in the logical framework. Purpose and outputs normally correspond to objectives and scope as defined in the RRP. Assistance in defining the purpose is provided in the User's Guide cited in footnote 1. It is

[5] These guidelines cover only project and sector loans in the public sector. There are separate guidelines for program loans and private sector operations.

also important to correctly define outputs in terms of what is to be achieved (e.g., a service capability or item of infrastructure) rather than according to cost components or inputs. The project scope, as used in the RRP, is normally presented in terms of cost components rather than outputs. For example, consultants are an input and normally form a separate cost component, but do not constitute an output. This section also briefly mentions any major changes in design or scope that ADB has subsequently approved or formally accepted, along with any modified purpose or goal based on agreed upon changes in the project.[6]

19. **Cost, Financing, and Executing Arrangements** summarizes important details about the project cost and financing arrangements, including any associated AOTA and cofinancing arrangements. Details of the appraised cost will normally be presented in an appendix along with actual costs, and this section refers the reader to that appendix. The text supplements, but does not repeat information contained elsewhere in the report. The executing arrangements are then briefly described.

20. **Completion and Self-Evaluation** is a brief review and commentary on the content and objectivity of the PCR, particularly in relation to the project's overall success rating. Important aspects for review include whether the PCR evaluates all of a project's purpose, whether such evaluation is well supported by evidence, and whether the overall success rating is based on a balanced evaluation as described in these guidelines. Other aspects of relevance might include the extent to which the PCR reviews any associated AOTA, project design and preparation, and performance of the main stakeholders.

21. **OEO Evaluation** identifies the major focus of the PPAR, including special reasons, if any, for selection of the project and for the timing of the evaluation. The PPAR upon completion indicates that the views of ADB's concerned departments and offices and those of the borrower and EAs have been noted, except as appropriately indicated in the report.[7]

C. Chapter II: Planning and Implementation Performance

22. This chapter describes the consistency of the project with the country's development objectives, and the extent to which the project's outputs were achieved. It assesses implementation in terms of the efficacy as well as the efficiency with which the outputs were produced, including management performance.[8] The chapter includes the following sections:

- Formulation and Design
- Achievement of Outputs
- Cost and Scheduling
- Procurement and Construction
- Organization and Management

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[6] Factors responsible for changes in design or scope are discussed elsewhere; see para. 23.

[7] In case the borrower does not respond to requests that it provide comments, the following statement is included in this section: "Copies of the draft PPAR were forwarded to the Borrower and Executing Agency on _____ with a request that comments be provided within ____ weeks. Although the request was followed up subsequently, no comments were received; it is, therefore, assumed that neither the Borrower nor the Executing Agency wishes to comment on the PPAR."

[8] Efficacy is the extent to which the project achieved its purpose (i.e., immediate objectives) as specified in the policy goals, and physical, financial, and institutional objectives established at appraisal or as subsequently formally modified. Efficiency involves an assessment of results in relation to inputs; it considers costs, cost-effectiveness, and implementation period.

23. **Formulation and Design** has its major focus on the relevance[9] of project preparation, design, scope, and technology. The section considers the major project components (including AOTA) either separately or jointly, in the light of ADB's strategic development objectives, COS, and CAP; and the country's governance, macroeconomic, and sector policy framework and development plans. Other factors affecting relevance include the quality of consultants' work that contributed to feasibility and design studies, the extent of beneficiary participation, and the adequacy of any provisions made at appraisal to adjust the design. The section assesses quality-at-entry issues in relation to the design intended when the financing was approved. It considers the efficacy in achieving project outputs and whether any significant changes in design were caused by, or consistent with, changes in the COS/CAP or the DMC's policy environment after the financing was approved. External factors such as export prices, weather, and the peace and security situation may also affect the project's continuing relevance, and the efficacy and efficiency of project implementation.

24. **Achievement of Outputs** provides an assessment of the extent to which the expected outputs as described in the Background chapter were achieved. It is important to describe the quality of the physical achievements or their ability to deliver the expected service, as well as the quantity or size of the achievement. The assessment could be reported in different ways. One alternative is to provide a sufficiently detailed description of the achieved outputs at this point of the report. Where there are many outputs, it may be appropriate to describe the achievements in an appendix and include only a summary statement in the main text. For those cases where it is difficult to describe the purpose and outputs separately, it may be better to include the detailed description of outputs in the following chapter, where achievement of purpose is described. In such cases, the Achievement of Outputs section would contain a summary statement indicating whether or not outputs were satisfactorily delivered and are of the expected quality.

25. **Cost and Scheduling** compares approved and actual capital costs and implementation time, assesses the impact of any underrun or overrun on project outputs, and identifies those aspects responsible for each variation.

26. **Procurement and Construction** covers the efficiency of bidding procedures, contract award, suppliers, contractors, and the results of commissioning and performance testing. Technical problems related to procurement and construction that prevent the project from attaining optimum capacity are discussed.

27. **Organization and Management** assesses the efficiency of EA arrangements and the performance of government agencies concerned during project preparation, approval, and implementation. This section includes a review of loan covenants applicable up to the completion stage and the DMC government's compliance. Of particular importance is timely submission of financial statements and audited project accounts. Possible factors contributing to this performance include (i) extent of borrower commitment; (ii) number, reporting channels, coordinating mechanisms, and management information systems of agencies; (iii) capability of counterpart staff in technical as well as financial aspects of management; (iv) extent of corrupt practices (if any); and (v) appropriateness of consultant inputs and their effectiveness. The section also assesses the extent to which ADB's performance in identifying, preparing, and supervising the project affected the design and implementation. Relevant to this assessment is a review of the frequency, composition, and length of inception and review missions.

[9] Relevance refers to the consistency of project goals, purpose, and outputs with the country's overall development needs, ADB's assistance strategy for that country, and ADB's strategic objectives both at the time of approval and at evaluation.

28. This section also focuses attention on (i) performance of advisory consultants; (ii) extent of technology transfer through consultants, training activities, and studies; (iii) changes in the EA's staff capability, reporting arrangements, and adequacy of the EA's internal processes of monitoring and evaluation; (iv) relevance of and compliance with loan covenants relating to institutional development and policy reforms; and (v) effects of changes in the macroeconomic and sector framework and in governance on the sustainable capability of EAs.

D. Chapter III: Achievement of Project Purpose

29. This chapter assesses efficacy, efficiency, and sustainability in achieving the project purpose. It includes the following sections:[10]

- Operational Performance
- Performance of the Operating Entity
- Economic Reevaluation
- Sustainability

30. **Operational Performance** evaluates the individual outputs generated under the project, including those under associated TA or policy changes provided for under loan covenants, in respect to achievement of the project's purpose. The project purpose to be evaluated will have been defined in Chapter I under Purpose and Outputs. Since evaluation is done during the first few years of a project's operational life, assumptions must be made about the sustainability of operational arrangements and probable future operating performance. Two important factors affecting sustainability are the financial arrangements for the project (e.g., tariffs and other cost recovery arrangements, or budget allocations for maintenance) and the performance of any operating entity. These two factors are described in detail in other sections of this chapter, and only summary reference is made under Operational Performance. The Operational Performance section must be well argued and supported with suitable evidence. Key assumptions about future performance should be stated. The section discusses major factors (other than those covered in Chapter II), including any external developments responsible for variations in the achievement of the purpose as defined at appraisal. Of particular importance is analysis of the impact of government macro and sector policies. Other issues may include maintenance procedures and staff capabilities, operation and maintenance (O&M) costs, prices, actual versus forecast demand, capability and performance of the entity responsible for operations, and availability of inputs including skilled labor. The section describes implementation of any remedial measures recommended in the past and discusses further effort and measures needed. Other aspects considered in some cases include the role and activities of the World Bank and other aid organizations, and changes in ADB's own policies since project appraisal.

31. **Performance of the Operating Entity** reviews the current and projected performance of the operating entity and presents a financial reevaluation (if considered appropriate). The financial reevaluation calculates the financial internal rate of return (FIRR). All financial analyses, including those evaluating the operating entity's financial statements, follow the *Guidelines for Preparation and Presentation of Financial Analysis*. The aim of the analyses is to assess the effect of the financial and operating arrangements on project financial viability and sustainability. It is intended that this section provide added information to support the broad assessments on sustainability made under Operational Performance (para. 30), and for use in comparison with results of economic analyses (para. 33). This section assesses the capacity of the operating entity to operate and maintain project facilities adequately; and to achieve cost recovery and/or to secure the allocation of funds for O&M, for servicing of project and other

[10] The appropriateness of and compliance with any relevant loan/project covenants are covered under these sections.

debt, and for meeting covenanted performance targets. The analyses evaluate these issues in the light of such constraints as internal inefficiencies; tariffs, subsidies, and prices; and competitive or government-imposed limitations on the adjustment of tariffs and prices. If the project is relatively large, this section considers its impact on the EA. The analyses should be supported by appendixes. The main supporting information for the analysis of the operating entity is expected to comprise financial statements and derived financial ratios. For financial reevaluation, the appendix should outline the main assumptions of the analysis and present a summary table of the benefit and cost streams.

32. This section also assesses the rationale, magnitude, and incidence of any subsidies and their implications for fiscal policy and resource allocation. It considers the adequacy of internal and/or external auditing arrangements and, if necessary, measures to improve them.

33. **Economic Reevaluation** provides a measure of the efficiency of the project in achieving its stated purpose. The economic reevaluation normally comprises the estimation of the EIRR involving quantifiable direct and indirect economic benefits and costs.[11] The EIRR may also be compared with the FIRR to draw conclusions about prices and resource transfers, and the suitability of the project for ADB support (as opposed to financing by the private sector). In addition to the calculation of the EIRR, the least-cost or cost-effectiveness analysis usually carried out at appraisal,[12] especially for projects in public utility sectors, is reexamined and, if practical, is reestimated. Cost-effectiveness analysis (i.e., cost per beneficiary) is important in sectors such as education, health, and urban development, where EIRR calculation may not be practical.[13]

34. EIRR estimates are prepared for each separable or independent project component involving direct production or physical infrastructure; for such components, rates of return are normally given in the RRP. This section also gives an overall project EIRR estimate combining benefit and cost streams from each component where the rates of return were estimated separately. Methodologies for rate of return and cost-effectiveness analysis follow current guidelines.[14] A guideline for converting ex-post costs and benefits to constant value terms for purposes of economic evaluation is given in Appendix 3 of this paper. If the standard methodology has been revised, or for any reason the evaluator cannot accept the approach at appraisal or in the PCR, the text explains major differences among the estimates. An appendix should then present the detailed methodology and assumptions used in the economic reevaluation (see specimen in Appendix 4). Where the methodology differs from that used at appraisal, to facilitate comparison with the appraisal expectation an updated estimate is made using the appraisal methodology. In cases where the EIRR is either quite high or very low, supportable conclusions concerning the level of the EIRR might be reached without making detailed estimates. However, full rigor is warranted when a project is on the borderline between two assessment categories (para. 50). Economic benefits and costs for which data or resource constraints prevent quantification may be discussed, supported in some detail, if there are reasons to believe they are significant.

35. The EIRR computed at evaluation reflects actual benefits and costs realized up to the time of evaluation and best judgments as to the most likely pattern of a project's sustainable performance. Actual results in future years may differ, and a project's success rating may

[11] Factors entering an assessment of economic and financial benefits are relevant to the efficacy criterion for project success, while EIRR, least-cost, and cost-effectiveness analyses are indicators of efficiency. Economic net present value is also a relevant indicator of efficiency.

[12] Cost-effectiveness analysis seeks to select the project alternative that would deliver the required output at minimum cost.

[13] Estimation of economic benefits and the EIRR is carried out if considered possible and practical in these sectors.

[14] ADB. 1997. *Guidelines for the Economic Analysis of Projects.* Manila.

change depending on the policy and macroeconomic framework, external factors, and aspects that affect project sustainability. This section includes sensitivity tests on the rates of return based on possible changes in key assumptions.[15]

36. **Sustainability** is an integral part of operational performance and is affected by project design and implementation. It is not intended that this section duplicate discussion in other parts of the report. Rather, this section should provide a focused assessment of sustainability, summarize pertinent points raised elsewhere, and present any added material of relevance. Important determinants of sustainability might include the following:

(i) a sufficient flow of funds either generated by the project or otherwise committed by the government or EA to cover O&M and periodic replacement of assets;

(ii) the government's ownership of and commitment to the project's objectives and provision of an appropriate framework of macro and sector policies;

(iii) technology remaining economically efficient and appropriate to the available human resources and institutional capabilities;

(iv) integration of the project with the sociocultural setting of its beneficiaries;

(v) adequate organizational and institutional framework and capability, managerial efficiency, and beneficiary incentives and participation;

(vi) regulatory controls and mitigating measures (including incentive systems) necessary to prevent adverse environmental impacts; and

(vii) robustness of the project's planning parameters considering possible external factors, including political developments, weather, etc.

E. Chapter IV: Achievement of Other Development Impacts

37. This chapter examines the project goals and unintended development impacts, whether positive or negative. The unintended impacts are those not specifically included within the stated project purpose or goals. Intended impacts are addressed as part of the assessment of project purpose or as a project goal. For example, an economic growth project may not aim to affect the environment or institutions, but may end up doing so. The effects of the project on the environment and the institutions are unintended and would be discussed in this chapter. (An environmental project, on the other hand, would have a specific purpose relating to the environment, and its environmental effects would be discussed in Chapter III.) As another example, it is possible for an environmental project to have unintended environmental impacts not related to its purpose, in which case the unintended impacts may be discussed here. This chapter normally includes the following sections, although the actual contents will depend upon the structure of the project:[16]

- Socioeconomic Impact
- Environmental Impact
- Impact on Institutions and Policy

[15] An example of an appropriate test is one evaluating the EIRR assuming that the EA takes certain steps recommended by the mission to improve O&M of the project.

[16] The appropriateness of and compliance with any relevant loan/project covenants are covered under these sections.

38. **Socioeconomic Impact** focuses on the distribution of direct economic benefits and economic costs, and on both beneficial and adverse social impacts. If sufficient reliable information is available, a description of relevant indirect or second order impacts also provides useful perspective on the project. To the extent that they are not discussed elsewhere, this section also covers critical factors, such as beneficiary/stakeholder participation, affecting these impacts. It examines impacts relevant to ADB's strategic objectives of poverty reduction, human development, and gender equity. Generation of low-skill jobs is important, particularly in relation to poverty reduction. The section also focuses on any specific measures included in a project to achieve beneficial social impacts or to mitigate project impacts on disadvantaged groups. An example of such mitigation is resettlement of families and firms displaced by infrastructure projects. Where applicable, the impact of the project on private sector development in terms of backward/forward linkages, opportunities created for (or lost to) the private sector, etc. should be discussed.

39. Most projects approved before 1990 had no major social objectives. In such cases, evaluation missions probe to identify unintended impacts. Frequently, however, time and budget constraints limit data gathering; and in the past, provisions under projects for monitoring social impacts have not proven effective.[17] Evaluation missions make use of existing available surveys and studies to the extent possible. In some cases, they carry out rapid reconnaissance or other surveys. In any event, missions normally meet and interview a sample of beneficiaries and try to identify and contact representatives of any group adversely affected, including women and indigenous people.

40. Relevant gender issues include the following: women's involvement in project design and implementation; project effects on women's access to income, credit, education, health services, and training; and women's workload and role in the household/workforce, child rearing, and health and nutrition. This section also examines the relevant commitment and capability of the EA to target female beneficiaries.

41. **Environmental Impact** considers significant impacts as well as remedial measures that have been taken or may be needed. Examples of adverse impacts include denudation of upland slopes; creation of health hazards related to industrial and urban pollution; salinization of agricultural soils; pollution of water resources; uncontrolled fishing leading to depletion of fish resources; and unregulated tapping of groundwater, leading to lowering of water tables. Some of these problems are due to overexploitation of resources, urbanization, industrialization, and institutional weaknesses, but they are often exacerbated by policy and market failures. A careful analysis of the impact of borrower policies and laws on environmental protection is therefore essential, as is an assessment of project compliance with relevant environmental legislation and regulations. This section also assesses the adequacy of the environmental mitigation measures and environmental monitoring and management requirements adopted at appraisal, the extent to which these measures have been implemented, and borrower compliance with environment-related loan covenants.

42. **Impact on Institutions and Policy** discusses unintended impacts that may result from the project and associated AOTA. These impacts affect the capability and effectiveness of government, private entities, and their staff, as well as beneficiary groups such as farmers' organizations and cooperatives. Project- and/or AOTA-related measures include strengthening or reforming existing institutions, establishing new institutions, improving the enabling environment or governance through policy or legal reform, and creating domestic capacities to implement appropriate policies and programs.

[17] Availability of data on social impacts is expected to improve under the PPMS (para. 3).

F. Chapter V: Overall Assessment

43. This chapter contains the overall assessment of the project based on five building blocks of evaluation, namely relevance, efficacy, efficiency, sustainability, and institutional development and other impacts. Guidance for rating a project and the list of subcriteria to be used for assessing each criterion are provided in Part III (paras. 56-86) of these guidelines. This chapter also includes performance ratings for the Borrower and ADB. The sections under this chapter are as follows:

- Relevance
- Efficacy
- Efficiency
- Sustainability
- Institutional Development and Other Impacts
- Overall Project Rating
- Assessment of ADB and Borrower Performance

44. **Relevance** discusses the evaluator's assessment with regard to the consistency of the project's goals, purposes, and outputs with the government's development strategy, ADB's lending strategy for the country, and ADB's strategic objectives both at the time of approval and at evaluation. A project could be either highly relevant with a value of 3; relevant, 2; partly relevant, 1; or irrelevant, 0. This section also provides a summary of the principal factors (which were discussed in the previous sections of the report) supporting the evaluator's assessment. For guidance on assessing relevance, see paras. 63-66 and 83-84 of these guidelines.

45. **Efficacy** describes the evaluator's assessment of the extent to which the project achieved its purpose (i.e., immediate objectives), as specified in the policy goals and the physical, financial, and institutional objectives adopted at project approval, or as formally modified during implementation. The rating for efficacy could be either highly efficacious with a value of 3; efficacious, 2; less efficacious, 1; or inefficacious, 0. This section also provides a summary of the principal factors (which were discussed in the previous sections of the report) supporting the evaluator's assessment. For guidance on assessing efficacy, see paras. 67-72 and 83-84 of these guidelines.

46. **Efficiency** presents the evaluator's assessment regarding the achievement of project purpose in relation to the use of inputs (such as financial and economic costs as well as the implementation time). Assessment can be made regarding the efficiency of investment as well as efficiency of process. However, one should not substitute for the other. The evaluation of efficiency of investment should include efficiency of the project during operation and where possible should use economic and financial rates of return. If not, other measures of cost-effectiveness could be used. A project could either be highly efficient with a value of 3; efficient, 2; less efficient,1; or inefficient, 0. This section also provides a summary of the principal factors (which were discussed in the previous sections of the report) supporting the evaluator's assessment. For guidance on assessing efficiency, see paras. 73-76 and 83-84 of these guidelines.

47. **Sustainability** focuses on the evaluator's assessment of the likelihood that human, institutional, and financial resources are sufficient to support the continuous achievement of project results and benefits over the economic life of the project. The rating for sustainability could either be most likely with a value of 3; likely, 2; less likely, 1; or unlikely, 0. This section also provides a summary of principal factors (which were discussed in the previous sections of

the report) supporting the evaluator's assessment. For guidance on assessing sustainability, see paras. 77-78 and 83-84 of these guidelines.

48. **Institutional Development and Other Impacts** discusses the evaluator's assessment of the improvement in the EA's or the country's ability to make effective and efficient use of its human, financial, and natural resources in pursuing economic, environmental, and social activities prompted by the project. The assessment would also incorporate other negative or positive development impacts not considered elsewhere. The rating for institutional and other development impacts could either be substantial with a value of 3; significant, 2; moderate, 1; or negligible, 0. This section also provides a summary of the principal factors (which were discussed in the previous sections of the report) supporting the evaluator's assessment. For guidance on assessing institutional and other development impacts, see paras. 79-84 of these guidelines.

49. **Overall Project Rating** summarizes all the major elements that determine the overall rating of the project. It contains a matrix (as shown in Table 1) that provides the assessment, rating value, and weights given to each criterion.

50. The overall rating is given as highly successful, successful, partly successful, or unsuccessful:

(i) **Highly Successful (HS).** The overall weighted average is greater than 2.5. This rating is given to projects whose achievements exceed expectations with very high probability that the purpose and goals will be achieved sustainably and efficiently over the project life, that the project has strong relevance to the DMC's and ADB's objectives, and that there are no significant unintended negative impacts. Specifically, none of the 5 criteria has a score of less than 2.

(ii) **Successful (S).** The overall weighted average is between $1.6 \leq S \leq 2.5$. In addition, although the degree of achievement is insufficient or some negative results have occurred that prevent a highly successful rating, there is no major shortfall, and the expected purpose and goals will be mostly achieved sustainably over most of the expected economic life. The project is relevant to the DMC's and ADB's objectives, its implementation and operations are efficient, and any negative impacts are small in relation to the gains under the project. Specifically, none of the 5 criteria has a score of less than 1.

(iii) **Partly Successful (PS).** The overall weighted average is between $0.6 \leq PS < 1.6$. In addition, although the evaluation anticipates a significant shortfall in achieving the purpose and goals, and may consider full sustainability unlikely, it expects that some components will achieve major benefits (e.g., equivalent to at least half the level originally expected). Specifically, the number of criteria receiving a rating of less than 1 should not exceed 2; otherwise, the lowest rating would be given.

(iv) **Unsuccessful (US).** The overall weighted average is less than 0.6. In addition, evaluation considers that the project is a technical and economic failure in the sense that it expects the facilities to operate at a low level of installed capacity, if at all, or with high cost requiring a large subsidy. There may be many negative impacts, and efficiency is very low.

Table 1: Assessment of Project Overall Performance

Criterion (a)	**Weight** (b)	**Assessment** (c)	**Rating Value** (d)	**Weighted Rating** (b x d)
1. Relevance	20%	Highly Relevant Relevant Partly Relevant Irrelevant	3 2 1 0	
2. Efficacy	25%	Highly Efficacious Efficacious Less Efficacious Inefficacious	3 2 1 0	
3. Efficiency	20%	Highly Efficient Efficient Less Efficient Inefficient	3 2 1 0	
4. Sustainability	20%	Most Likely Likely Less Likely Unlikely	3 2 1 0	
5. Institutional Development and Other Impacts	15%	Substantial Significant Moderate Negligible	3 2 1 0	
Overall Rating (sum of the weighted ratings)	Highly Successful (HS): Overall weighted average (OWA) is > 2.5 and none of the 5 criteria has a score of less than 2; otherwise the rating would be downgraded by one level. Successful (S): OWA is between 1.6 ≤ S ≤ 2.5 and none of the 5 criteria has a score of less than 1; otherwise the rating would be downgraded by one level. Partly Successful (PS): OWA is between 0.6 ≤ PS <1.6 and number of criteria receiving a rating of less than 1 should not exceed 2; otherwise the lowest rating would be given. Unsuccessful (US): OWA is < 0.6.			

51. **Assessment of ADB and Borrower Performance** assigns an overall rating to ADB's and the borrower's performance over the entire project cycle based largely on the description and discussion found earlier in the text (particularly that described in para. 27). It rates the two major collaborators in project undertakings separately as highly satisfactory, satisfactory, less than satisfactory, or unsatisfactory.

G. Chapter VI: Issues, Lessons, and Follow-Up Actions

52. This chapter includes the following sections:

- Key Issues for the Future
- Lessons Identified
- Follow-Up Actions

53. **Key Issues for the Future** includes project-related issues that either remain unresolved or continue to be crucial for the sustainability of project benefits. Any ongoing projects in the same sector should be considered, i.e., whether their design and implementation reflect lessons learned from the project under evaluation, and whether there are any implications regarding changes needed in the ongoing project. Finally, this section discusses broader conclusions emerging from the study that need to be addressed on a longer term basis by either the DMC or ADB. Normally, the number of issues discussed is limited to the 2-4 most important ones.

54. **Lessons Identified** includes general conclusions, both positive and negative, arising from the review of the entire project cycle, that are relevant to the future operations of ADB, the borrower, or the EA, especially operations in the particular sector.[18] This section normally confines lessons regarding any ADB-wide issues (e.g., selection of consultants, participation of beneficiaries, and delays in implementation) to those with particular relevance to the sector or the project being evaluated.

55. **Follow-Up Actions** summarizes mainly project-specific matters that require further action by the EA, borrower, or ADB.[19] Follow-up actions should be limited to those that are specific, monitorable, actionable, relevant, and time bound. ADB divisions as well as executing and implementing agencies responsible for taking actions and monitoring them should be identified and notified. See specimen in Appendix 5.

[18] The evaluator is normally familiar with lessons raised in previous evaluation reports concerning this sector and indicates in this section when the experience of the present project reinforces or supplements earlier lessons.

[19] This section does not include lessons or follow-up actions identified in previous reports for which ADB, the borrower, or the EA have already taken remedial action.

III. A GUIDE TO PROJECT RATING

A. Background

56. The objectives of revising these rating guidelines are (i) to prepare guidelines that are consistent with those of other members of the Evaluation Cooperation Group (ECG),[20] and (ii) to be more transparent in the rating.

57. The main criteria (termed the building blocks of evaluation by the ECG) used in the determination of the overall assessment (OA) are relevance, efficacy, efficiency, sustainability, and institutional development and other impacts. This terminology has been defined as part of the harmonization of evaluation methodology initiative with the other ECG members. The ECG decided that it is more useful to divide the OA rating categories into an even number of groups (i.e., 4) rather than 3 or 5 to avoid any tendency by the evaluator to cluster ratings in the middle group.

58. To be transparent, a schematic approach to rating is needed. However, this can be very difficult due to the diverse nature of projects. For example, projects can have several related components—some big, and some small yet important. Other projects may be loans to several subprojects through financial intermediaries. A project may be a follow-up phase of a previous project; another may be a component of a large project done simultaneously with other lenders and/or donors.

B. Building Blocks of Evaluation

59. Relevance, efficacy, and efficiency are outcome-based assessments. But sustainability, as well as institutional and other development impacts, has considerations that can overlap with the criteria used for outcome-based assessment. Considering this overlap, different weights were attached to these building blocks.

60. Under each of these main criteria (building blocks), several subcriteria were identified considering the components of the project and the stages of implementation. The subcriteria list may not be exhaustive, and the significance of each subcriterion may not be equal. The higher the number of subcriteria, the less important each item will become.

61. Since projects are diverse, the subcriteria that are relevant for each project may be different. Therefore, the subcriteria (paras. 62-82) form a checklist to guide the evaluator. The evaluator should finalize the list of subcriteria for each main criterion, rationalizing their relevance in determining the rating. The list of subcriteria could be given in the position paper.[21]

62. Table 2 indicates the definition of each of the main evaluation criteria, the weights given to each in the OA, and the rating that can be specified under each criterion.

[20] Established in 1996 by the heads of evaluation in the multilateral development banks, the Evaluation Cooperation Group works to strengthen cooperation among evaluators and harmonize evaluation methodology in its member institutions: African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank, and World Bank Group.

[21] A brief concept paper highlighting the approach and major issues to be addressed by the operations evaluation mission for the project, prepared by the mission for approval by the Director/Chief, OEO.

1. Relevance

63. Since projects approved by ADB have to be relevant at the approval stage, consideration of this alone would pull all projects toward a higher rating. Therefore, it is important to see the continuation of the relevance as the project moves from approval to implementation and operation. Accordingly, relevance of a project both at the time of approval (ex-ante) and at the time of evaluation (ex-post) is considered in the evaluation.[22] Consideration should also be given to changes made during implementation.

64. The ex-post concept is adopted to avoid a highly relevant rating to a project that was relevant at the time of approval but is irrelevant at the time of evaluation. For example, a highly successful project in a distorted market may not be as successful in a more liberalized environment that came about during its implementation. The ex-post concept provides an incentive for the borrower and lender to give priority to removing distortions in an economy prior to investing in a particular sector with a narrow focus. In rare instances, an ex-post situation may have been entirely unpredictable due to a natural disaster or an increase in world oil prices. In such a case, the evaluator should make a judgment and clearly indicate the reasons for it.

65. When there are several project components, the evaluator has to decide how important each is in terms of its contribution to the whole project when considering each subcriterion.

[22] The ECG decided to adopt ex-ante and ex-post evaluation in its definition of relevance.

Table 2: Building Blocks of Evaluation and Corresponding Weights

Criterion	Weight	Definition	Rating Description	Rating Value
A. Project Outcome Assessment				
1. Relevance	20%	Relevance is the consistency of a project's goals, purposes, and outputs with the government's development strategy, ADB's lending strategy for the country, and ADB's strategic objectives at the time of approval and evaluation.	Highly Relevant Relevant Partly Relevant Irrelevant	3 2 1 0
2. Efficacy	25%	Efficacy refers to the achievement of purpose (i.e., immediate objectives) as specified in the policy goals and the physical, financial, and institutional objectives adopted at project approval, or as formally modified during implementation.	Highly Efficacious Efficacious Less Efficacious Inefficacious	3 2 1 0
3. Efficiency	20%	Efficiency compares the achievement of project purpose with the use of inputs. It is based on implementation performance with consideration of the EIRR or cost-effectiveness of the investment.	Highly Efficient Efficient Less Efficient Inefficient	3 2 1 0
B. Sustainability	20%	Sustainability focuses separately on the likelihood that human, institutional, and financial resources are sufficient to support achievement of results and benefits over the economic life of the project.	Most Likely Likely Less Likely Unlikely	3 2 1 0
C. Institutional Development and Other Impacts	15%	The improvement in the EA's or the country's ability to make effective and efficient use of its human, financial, and natural resources in pursuing economic, environmental, and social activities prompted by the project. It would also incorporate improvements in other development impacts not considered elsewhere.	Substantial Significant Moderate Negligible	3 2 1 0
Overall Assessment (Weighted average of A1, A2, A3, B, and C)	Highly Successful (HS): Overall weighted average (OWA) is > 2.5 and none of the 5 criteria has a score of less than 2; otherwise the rating would be downgraded by one level. Successful (S): OWA is between 1.6 $\leq$ S $\leq$ 2.5 and none of the 5 criteria has a score of less than 1; otherwise the rating would be downgraded by one level. Partly Successful (PS): OWA is between 0.6 $\leq$ PS <1.6 and number of criteria receiving a rating of less than 1 should not exceed 2; otherwise the lowest rating would be given. Unsuccessful (US): OWA is < 0.6.			

66. The checklist of subcriteria for relevance includes

(i) relevance of project preparation[23] to project output at the time of approval,
(ii) relevance of project output to achieve project goals and purposes at the time of approval,
(iii) priority in the context of the DMC's development strategy at the time of approval,
(iv) priority in the context of ADB's development strategy for the DMC at the time of approval,
(v) priority in the context of the DMC's development strategy at the time of evaluation,
(vi) priority in the context of ADB's development strategy for the DMC at the time of evaluation,
(vii) priority in the context of one or more of ADB's strategic objectives at the time of evaluation, and
(vii) appropriate changes made at midterm review to make the project more relevant.

2. Efficacy

67. Efficacy is defined as the extent to which the project achieved its purpose (i.e., immediate objectives). It is an important concept in an evaluation to encourage accountability through goal-based evaluation. Sometimes it is difficult to evaluate whether intended outputs will actually achieve the intended purpose due to the influence of exogenous factors. In addition, evaluators should assess outcomes in terms of realistic targets. Extremely ambitious or excessively modest objectives should be normalized when assessing efficacy.[24]

68. When there are several components contributing to achievement of certain objectives and goals, the evaluator's judgment is needed to determine what weights to attach to each in determining this criterion.

69. Since there is a separate weight for sustainability, the outcome should be measured in terms of its status at time of project completion. Subsequent deterioration, for example, would be reflected under the sustainability criterion.

70. The subcriteria for efficacy are difficult to define, as the project purpose as a whole needs to be considered. One can separate these either by types of outcomes or by project components. The following checklist uses the former method.

71. The checklist of subcriteria for efficacy includes

(i) achievement of most project physical outcomes,
(ii) achievement of most project intangible outcomes (for example, benefits of TA), and
(iii) the likelihood of project outcomes leading to project goals.

[23] Evaluation of project preparation should include the quality of the TA and feasibility studies that contributed to the formulation and design of the project, the extent of beneficiary participation, and flexibility of the design to adapt to changing situations.

[24] This would be done on an exceptional basis, clearly indicating the evaluator's reasoning for normalizing the stated objectives of the project. The evaluation should consider the compatibility of the project design to achieve the stated objectives.

72. Based on the stated purpose of the project and the subcriteria, the evaluator assigns the extent of efficacy, clearly stating the reasons for the rating.

3. Efficiency

73. Efficiency is determined by the actual or expected project benefits at the time of evaluation in comparison with the inputs used. The inputs include the financial and economic costs as well as the implementation time. Evaluations can be made regarding the efficiency of investment (including efficiency during operation) as well as efficiency of process. One aspect should not substitute for the other. Economic and financial rates of return should be used where possible to evaluate the efficiency of an investment. If not, other measures of cost-effectiveness could be used.[25] Other subcriteria can be used to determine the efficiency of process.

74. If there are two components, one for which an EIRR can be calculated, then the contribution of this component to the overall objective should be kept in mind when deciding the overall efficiency. If the EIRR or cost-effectiveness is not calculated, this needs to be rationalized in the position paper, and appropriate subcriteria specified to evaluate the efficiency of the process.

75. The checklist of subcriteria for efficiency of investment includes

(i) EIRR > 12 percent (where recalculated at evaluation);[26]
(ii) FIRR > weighted average cost of capital (where recalculated at evaluation);
(iii) cost-effectiveness in generating the project outputs; and
(iv) in the case of investment in social sectors, where the EIRR and FIRR are not normally calculated, efficiency of investment should consider, more importantly, for example (i) internal efficiency (e.g., conditions in the classroom), and (ii) external efficiency (e.g., transition to higher education or the world of work).

76. The checklist of subcriteria for efficiency of process includes[27]

(i) manner of ADB's internal processing of the project,
(ii) organization and management of executing and implementing agencies,
(iii) effectiveness of project management,
(iv) efficiency in recruiting consultants and of procurement, and
(v) timely and adequate availability of counterpart funding.

4. Sustainability

77. Sustainability refers to the capability of the capital assets, human resources, and organizational structure created or improved under the project to provide potential benefits throughout the project's expected economic life. An operation may be judged to have had a worthwhile outcome but to be unsustainable. To determine the ranking for sustainability, the evaluator considers the project's resilience to risks and whether, given the net cost of investment so far, it is likely to generate a sufficient flow of benefits to exceed the potential costs of operation.

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[25] The ECG harmonization paper acknowledges that the EIRR and FIRR have been used in fewer projects in recent years. Instead, cost-effectiveness criteria and value judgments are needed, especially in the social sectors, for which indicators are not always developed or are difficult to use consistently.
[26] Impact of macro policies would already be incorporated in an accurate EIRR calculation.
[27] Role of corruption (if any) may be included under this criterion.

78. The checklist of subcriteria for sustainability includes

(i) availability of adequate and effective demand for project services or products;
(ii) probable operating and financial performance of the operating entity and the ability to recover costs;
(iii) probability of the existence of appropriate maintenance policy and procedures;
(iv) probability of funds availability (cash flow) for continued operation, maintenance, and growth requirements;
(v) probable continued availability of required skills;
(vi) probable availability of appropriate technology and equipment to operate the project;
(vii) probable availability of the enabling environment (subsidies, tariffs, prices, competitiveness, and political developments) in which the project is operating at the time of evaluation;
(viii) government ownership and commitment to the project;
(ix) the extent to which the operations affect the environment and renewable or nonrenewable resources; and
(x) the extent to which community participation and beneficiary incentives are adequate to maintain the project benefits.

5. Institutional Development and Other Impacts

79. Institutional development impact is determined by the extent to which the project has contributed to improvements in the enabling environment of the country such that its human, financial, and natural resources can be more effectively used. These improvements may or may not have been intended under the project and may not directly relate to the project. The evaluator has to consider what really makes a difference in terms of development impact.

80. In addition to the institutional development impacts, there may be other positive or negative impacts on social, environment, and/or political aspects. If these are not imbedded in the main project goals, their impacts should be incorporated under this criterion.

81. Possible subcriteria for institutional development impacts relate to the extent to which such impacts have affected the DMC (positively or negatively) include

(i) the country's formal laws, regulations, and procedures;
(ii) the people's informal norms and practices;
(iii) institutional or organizational strengthening;
(iv) institutional skill levels and capacities;
(v) participatory attitudes of society; and
(vi) macroeconomic or sector policy framework.

82. Possible subcriteria for other development impacts not considered elsewhere include

(i) impacts on poverty,
(ii) impacts on the environment,
(iii) impacts on social organization, and
(iv) impacts on political developments.

C. Application of the Ranking for Each Main Criterion

83. The following criteria will be used to derive a rating for each building block of evaluation:

(i)	Over 75 percent of the subcriteria met (almost all targets)	Highest Rank
(ii)	Over 50 percent, up to and equal to 75 percent of the subcriteria met (most targets)	Second Highest Rank
(iii)	Over 25 percent, up to and equal to 50 percent of the subcriteria met (some achievements)	Third Highest Rank
(iv)	25 percent or fewer subcriteria met (very few achievements)	Lowest Rank

Examples of rating each criterion are provided in Appendix 6.

84. The evaluator should make a judgment on how important each subcriterion is in terms of its contribution to assessing one criterion; otherwise equal weights could be assigned to each subcriterion. This necessitates an exhaustive list of subcriteria that is suitable to a given project, which could be indicated in the position paper.

D. Transition from the Old to the New Rating System

85. From year 2000, the OA will be one of four categories instead of the three OA categories OEO was using before (see figure below). Since the annual review of evaluation operations will be reflecting a three-year moving average of evaluation ratings, the overall assessment for 1998 and 1999 will have to be reviewed and adjusted based on the new guidelines for those projects that obtained generally successful and partly successful ratings.

86. When deciding how to go back to the old rating categories, it should be kept in mind that some projects that were partly successful may now move to the successful category if they were in the higher end of partly successful. Similarly, if before they were at the lower end of the generally successful category, they could now move to the successful category, while those at the higher end would have ratings of highly successful.

Figure: Old and New Rating Systems

<table>
<tr><th>Previous
Overall Assessment Categories</th><th>New
Overall Assessment Categories</th></tr>
<tr><td rowspan="2">Generally Successful</td><td>Highly Successful</td></tr>
<tr><td rowspan="2">Successful</td></tr>
<tr><td rowspan="2">Partly Successful</td></tr>
<tr><td>Partly Successful</td></tr>
<tr><td>Unsuccessful</td><td>Unsuccessful</td></tr>
</table>

APPENDIXES

SAMPLE FORMAT OF THE PPAR COVER AND OTHER PRELIMINARY PAGES

A. Sample of Front Cover of Project Performance Audit Report

ASIAN DEVELOPMENT BANK **PPA:**

PROJECT PERFORMANCE AUDIT REPORT

ON THE

(Name of Project Loan)
(Loan – Country Code)

IN

(Country)

(Month and Year)

B. Sample of Inside Front Cover

CURRENCY EQUIVALENTS

Currency Unit – Sri Lanka Rupee/s (SLRe/SLRs)

		At Appraisal Evaluation	At Project Completion	At Operations
		(September 1987)	(December 1996)	(November 1999)
SLRe1.00	=	$0.0332	$0.0182	$0.0139
$1.00	=	SLRs30.17	SLRs54.84	SLRs71.95

ABBREVIATIONS

ADB	–	Asian Development Bank
EIRR	–	economic internal rate of return
HDM	-	highway design and maintenance standards model
IRI	–	international roughness index
km	–	kilometer
OEM	–	Operations Evaluation Mission
PCR	–	project completion report
RCDC	–	Road Construction and Development Corporation
RDA	–	Road Development Authority
SDR	–	special drawing rights
TA	–	technical assistance
VOC	–	vehicle operating cost

GLOSSARY

WEIGHTS AND MEASURES

NOTES

(i) The fiscal year (FY) of the Government ends on _____.

(ii) In this report, "$" refers to US dollars.

Operations Evaluation Office, PE-

C. Sample of Table of Contents

CONTENTS

Page

D. Sample of Basic Project Data [a]

BASIC DATA
Project Title (Loan No.- Country)

PROJECT PREPARATION/INSTITUTION BUILDING

TA No.	Technical Assistance Name	Type	Person-Months	Amount	Approval Date

KEY PROJECT DATA ($ million)	As per ADB Loan Documents	Actual
Total Project Cost		
Foreign Exchange Cost		
ADB Loan Amount/Utilization		
ADB Loan Amount/Cancellation		
Amount of Cofinancing		
Supplementary ADB Loan		
Supplementary Cofinancing		

KEY DATES	Expected	Actual
Fact-Finding		
Appraisal		
Loan Negotiations		
Board Approval		
Loan Agreement		
Loan Effectivity		
First Disbursement		
Supplementary ADB Loan Approval		
Supplementary Cofinancing Approval		
Project Completion		
Loan Closing		
Months (effectivity to completion)		

ECONOMIC AND FINANCIAL INTERNAL RATES OF RETURN (%)	Appraisal	PCR	PPAR
Economic Internal Rate of Return			
Financial Internal Rate of Return			

BORROWER

GUARANTOR

EXECUTING AGENCY

MISSION DATA Type of Mission	No. of Missions	No. of Person-Days
Fact-Finding/Preappraisal		
Appraisal/Loan Negotiations		
Reappraisal (Supplementary Loan)		
Project Administration		
Inception		
Review		
Disbursement		
Special Project Administration		
Project Completion		
Postcompletion Review/Follow-Up		
Operations Evaluation		

[a] Nonapplicable headings to be deleted.

E. Guidelines for Map Preparation

1. Preparation of maps should strictly follow the guidelines given in the current *Handbook of Style and Usage*. The mandatory requirements and their placement are given in the table.

Table A1: Map Elements and Their Placement

Required Element	Placement/Rule
Title	This is normally the project name. Write title in capital letters and boldface.
Country name	Write in capital letters above the title.
North indicator	Make sure this points north, not just to the top of the page.
Scale	Make sure the measurements are in proper proportion to one another.
Legend	Define each of the symbols used on the map, and only those.
All place names that have been mentioned in the text of the report	Omit place names not directly relevant to the report.
Two pairs of coordinates on each side, plus coordinates for the equator or international date line, if crossed	Make sure the pairs match. *Exception:* Maps depicting a very small geographic area may use only one pair of coordinates.
Boundaries are not necessarily authoritative	Include this disclaimer if the map shows any level of political boundaries, whether internal or international.
Inset map showing project location	Include the inset if applicable. Omit it if the country's borders are politically sensitive. Show coordinates on the inset. Make sure all elements correspond to those on the larger map.

Note: Avoid: names of other countries, minor rivers and towns, and inconsistencies in spelling between the map and the text.

1. Placement

2. If the map relates to the entire report, place it immediately before the main text. If a map is pertinent only to a part of the report, place it soon after the relevant text, or cite at the appropriate point and attach as an appendix.

2. Numbering

3. If there is more than one map, number the maps (e.g., Map 1, Map 2), placing these labels outside the map in the upper right-hand corner of the page. Make sure that no two maps have exactly the same title.

SAMPLE OF EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

"No rigid designs to a fluid project situation please"

Over the last decade, responsibility for Bhutan's road network has been gradually transferred from the Indian Border Roads Organization (IBRO) to the Department of Roads (DOR) of the Ministry of Communications. At project formulation, there was an urgent need to reduce the substantial backlog of periodic maintenance, which had built up since DOR took over maintenance of a number of national roads from IBRO in 1989, including the East-West Highway.

The East-West Highway Maintenance Project was formulated through a feasibility study financed by the Asian Development Bank (ADB), which identified periodic maintenance interventions for selected sections of the project road. The condition of the road surface varied from section to section, ranging from good to disintegrating. Although many road sections were in need of complete rehabilitation and reconstruction, they were not included in the project scope, because the cost of repairing them would have exceeded the envisaged loan amount. The project scope comprised (i) periodic maintenance works on 396 kilometers (km) of the 546 km road, (ii) strengthening and maintenance works on five bridges on the East-West Highway, (iii) consulting services to assist DOR with preconstruction activities and construction supervision, (iv) institutional strengthening of DOR through the development of a road maintenance management system (RMMS), and (v) strengthening DOR's institutional skills in planning road maintenance works and administering contracts. The Project also helped to establish a capacity for mechanized periodic maintenance in Bhutan.

Given the physical and institutional needs of the roads sector, the Project as conceived at appraisal and evaluated after seven years was, and still is, highly relevant. The Project's inclusion in the ADB country assistance plan was merited not only for economic reasons but also because the project road is the only east-west transport artery within Bhutan. Although motorized traffic on the road has been low and traffic growth moderate, the road is important because of its strategic role within the overall road network of the country. Overall, the Project's rationale of combining physical improvements with capacity building remains highly relevant.

Project implementation was scheduled over 48 months from July 1993 to June 1997. Actual implementation took only 46 months from March 1994 to December 1997. Preconstruction activities suffered a seven-month delay due to the delayed recruitment of the supervision consultants who were to assist with these activities. Further delays arose due to the initial poor response to the invitation to tender for the works and the subsequent contract negotiations with the selected contractors. The Project finished on time largely because of a reduction in project scope during implementation.

Total project cost was $6.52 million equivalent, compared with $6.51 million equivalent estimated at appraisal. However, this comparison is somewhat misleading: with a reduction in the scale of civil works by about 35 percent, there was a substantial increase in the cost of civil works per kilometer. The final cost of the road works was $5.54 million, an increase of about 24 percent over the appraisal estimate. The average

cost per kilometer was $21,400 compared with the appraisal estimate of $11,300, an increase of 89 percent.

The rise in the cost per kilometer was due to a rapid deterioration of the road surface between the time of the feasibility study and project implementation. When construction finally commenced, many of the road sections had deteriorated to a state where the periodic maintenance interventions proposed by the feasibility study were no longer appropriate, so the location and nature of civil works were revised considerably.

An accurate assessment of project efficiency (i.e., actual and expected project benefits in relation to project inputs) is problematic because of the lack of baseline data, the delays in project implementation that caused a shift in project scope, and the general difficulty of formulating a more verifiable counterfactual scenario. Nonetheless, given the strategic significance of the road and the fact that further deterioration would have rendered the road unusable, isolating vast areas of the country, any intervention to improve the current situation would have yielded very high economic returns.

Institutional development is a learning process and the Project laid the foundation for future efforts. However, it did not directly and noticeably enhance institutional development. The road maintenance management system chosen for the Project is unsuitable to conditions in Bhutan. DOR's skills in contract management were strengthened, but the number of staff available for contract management and the supervision of civil works is insufficient. The Project supported the Government policy of transforming DOR into a supervisory body and delegating traditional DOR functions to the private sector. Through policy dialogue, the Project attempted to increase cost recovery and budget allocations for road maintenance. While cost recovery remained elusive, some progress was made in increasing budget allocations.

The reconstruction and drainage improvements made under the Project will lengthen the life of the pavement. Other project interventions were designed to protect the pavement for a limited period that is now about to expire. Some of the road sections covered by the Project are already showing signs of deterioration, needing another round of periodic maintenance. The sustainability of the Project’s institutional efforts hinges on the willingness and ability of DOR and ADB to continue the learning process that was started under the Project. It is reassuring that ADB is processing another project to support the roads sector.

The Project as a whole did not fully meet its objectives, but overall project performance is rated successful. The physical targets set at appraisal were only partly achieved. However, the shift made during implementation to heavier maintenance interventions was generally consistent with the Project’s purpose of reducing the backlog of repairs. The Project only partly met the objectives of promoting the institutional development of DOR and building capacity in the roads sector at large. Maintenance management improved marginally and construction supervision and contract management remain areas of concern.

The Operations Evaluation Mission has identified the following key issues:

(i) Many weaknesses in the design of the Project and its implementation were skirted or overlooked by the project completion report (PCR). This

raises the general issue of self-evaluation and the PCR's value as a learning tool.

(ii) Since road conditions in Bhutan change quickly and unpredictably, the recommendations of the feasibility study were no longer fully relevant when the Project began. The type of interventions represented straightforward maintenance work, for which a full-fledged feasibility study may not have been necessary. Detailed engineering just before the commencement of works may have sufficed.

(iii) Reconstruction was excluded from the original design, although its urgency was known at appraisal, raising the question of how the accumulating repair needs on this strategic road were to have been addressed. This is a programming concern, which could have been dealt with by appropriately sequencing ADB's assistance and breaking it up into several interventions.

(iv) Efforts are under way to transform DOR into a regulatory agency and delegate its current operational functions to the private sector. ADB supports this policy. Given the shortage of trained engineers in Bhutan, the private sector would be likely to recruit the few skilled staff of DOR. It is unclear who in DOR should regulate the industry if many of its staff migrated to the private sector.

The key lessons from ADB's project experience include the following:

(i) Given the situation in Bhutan, project designs need to provide flexibility during implementation. A design that included only three types of periodic maintenance interventions has proven to be too rigid and impractical. In hindsight, a sector-type approach would have avoided many of the ad hoc adjustments and the confusion that arose from them. By dividing the work into subprojects to be implemented on a rolling basis, the Project would have been less susceptible to the risks inherent in a rigid design.

(ii) The fact that urgently needed reconstruction was excluded from the original design shows that the design was driven more by the given loan amount than by needs. The strategic significance of the project road and the substantial backlog of repair work should have been ascertained during the country assistance plan process. A longer-term program rather than a one-off project should have ensued from this consideration.

(iii) ADB’s general policy of financing supervisory services from loan funds was not followed, to the detriment of the Project. ADB should stress the importance of professional construction supervision and should insist on loan financing as this would help instill a sense of ownership and responsibility in the executing agency.

(iv) The RMMS followed a rigid approach to institutional development, without adaptation to local conditions, and the system installed under the TA was not a success. While Bhutan needs an information system for the management of road maintenance, ADB in consultation with DOR should

have exercised greater diligence in identifying the main design features of the system in the light of their suitability for the special conditions of Bhutan.

(v) There are obvious intrinsic merits in the maintenance of assets, but the maintenance interventions under the Project were given an extra economic justification. Given the unnecessary and largely unverifiable nature of the assumptions made, ADB should abandon the practice of such tautological economic analysis. The economic evaluation for road maintenance projects should focus on the timeliness and cost-effectiveness of the proposed interventions.

TREATMENT OF EXCHANGE RATE AND PRICE VARIATIONS IN THE ANALYSIS OF COMPLETED PROJECTS

A. Estimation of Financial Cost in Constant Prices

1. The financial cost of a completed project is estimated in constant or real prices that are obtained by expressing all prices in a unit of either local currency or foreign exchange of a certain date. Let us assume that we are interested in determining in real terms the cost of a completed project with foreign exchange and local currency cost components. All local project items follow local price trends and all foreign project items follow foreign price trends. Since foreign exchange prices are expressed in dollars, an exchange rate (e.g., ₱ per $) is needed to make the two cost components comparable. The relative price between foreign and local components is given by the ratio between the foreign price expressed in this example in pesos and the local price. This is alternatively described as the ratio between the foreign price index expressed in pesos ($FPI^{₱}$) and the local price index (LPI). Changes in the $FPI^{₱}$ will be determined by changes in the foreign dollar price of imported items and the exchange rate.

2. Given foreign and local cost streams denominated in current $ and ₱, our task is to express both streams in constant prices in terms of local currency. A simple strained procedure for calculating project costs in constant prices after accounting for variations in exchange rate, foreign prices, and local prices is outlined in this appendix.

3. Consider a project that was started in 1995 and completed in 1999 (Table A3.1). Following the present practice of the Asian Development Bank (ADB), the year of project completion is taken as the starting point for ex-post financial analysis.

Table A3.1: Illustrative Data of a Completed Project

Item	1995	1996	1997	1998	1999
Foreign Exchange Cost: Current $ (m)	20	30	65	80	120
Foreign Price Index ($FPI^{\$}$)	113	108	103	99	100
Local Currency Cost: Current ₱ (m)	40	60	90	120	180
Local Price Index (LPI)	73	78	83	92	100
Official Exchange Rate (₱ per $)	26	26	29	41	39

4. All local and foreign costs are expressed in constant 1999 prices using a domestic deflator for domestic costs and a dollar deflator for costs expressed in foreign exchange. The benefits and costs are then expressed in the domestic currency by converting the foreign exchange cost outflow using the 1999 exchange rate. Table A3.2 shows the procedure to be followed.

5. Following present ADB practice, the manufacturing unit value index (MUV) is used for the $FPI^{\$}$ shown in Table A3.1. Similarly, the deflator of gross domestic product (or if not available, the general wholesale or consumer price indexes) for the country

under consideration is used for the LPI. The average exchange rate for the year under reference will not be estimated.

Table A3.2: Procedure in Estimating Total Project Cost in Constant Local Currency

Item	1995	1996	1997	1998	1999	Total
1. Foreign Cost in Current $	20.0	30.0	65.0	80.0	120.0	315.0
2. Foreign Price index (1999 = 100)	113.0	108.0	103.0	99.0	100.0	
3. Foreign Cost in 1999 $ (3) = ((1) x 100)/(2)	17.7	27.8	63.1	80.8	120.0	309.4
4. Foreign Cost in 1999 ₱ (4) = (3) x 39 ₱	690.3	1084.3	2461.2	3151.5	4680.0	12066.3
5. Local Cost in Current ₱	40.0	60.0	90.0	120.0	180.0	490.0
6. Local Price Index (LPI) (1999 = 100)	73.0	78.0	83.0	92.0	100.0	
7. Local Cost in 1999 ₱ (m) (7) = ((5) x 100)/(6)	54.8	76.9	108.4	130.4	180.0	550.6
8. Total Cost in 1999 ₱ (4) + (7)	745.1	1160.3	2569.6	3281.9	4860.0	12616.9

B. Estimation of Economic Cost

6. ADB's *Guidelines for Economic Analysis of Projects* recommend that foreign and local components be expressed in border prices expressed in local currency at the official exchange rate. It is in this context that the recommended procedure, wherein the foreign dollar cost stream is expressed in 1999 prices using the $FPI^{\$}$ and then converted to pesos by using the 1999 exchange rate, is particularly relevant. To make the recommended procedure in paras. 1-5 compatible with economic analysis, we need to express the local cost component in border pesos. Having derived the foreign and local cost streams in constant financial prices, the methodology recommended in the *Guidelines for Economic Analysis of Projects* can be used to derive the border price equivalents.

SAMPLE OF AN APPENDIX ON ECONOMIC REEVALUATION

ECONOMIC REEVALUATION

A. Methodology and Assumptions

1. The economic viability of the Project was reassessed applying the same methodology used in the appraisal and project completion reports (PCR). The basic methodology for the economic analysis follows the approach given in the Asian Development Bank's *Guidelines for the Economic Analysis of Projects*. The rehabilitation of the roads under the Project was expected to lead to reduced vehicle operating costs (VOCs) and decreased expenditure on routine and periodic maintenance costs over the life of the roads. Economic internal rates of returns (EIRRs) were recalculated for each of the three road sections of Homagama-Avissawella, Avissawella-Ratnapura, Avissawella-Hatton, and the combination of all three sections. The PCR did not estimate separate EIRRs for each of the three road sections, and the road sections evaluated at appraisal differed from the three evaluated here.

2. The EIRR calculations are based on four major assumptions:

(i) The economic life of the project roads is assumed to be 20 years. The bridges constructed under the Project are assumed to have a life of 60 years. Salvage values for the remaining life of the bridges are added at the end of the 20-year analysis period.

(ii) Project construction costs comprise actual financial costs for civil works, design and supervision, and rights-of-way. Expenditures for bridges strengthened by the Road Development Authority (RDA) are included in the project costs.

(iii) All taxes and other transfer payments are removed from the financial costs and benefits streams. The financial costs and benefits are converted to economic costs and benefits using a standard conversion factor of 0.80 for the nontraded costs.

(iv) All current costs and benefits are brought to 1999 prices by applying the World Bank's manufacturer's unit value index for the traded components and gross domestic product deflator for all local costs.

3. The quantifiable benefits were estimated as the difference between the VOCs and road maintenance with and without the Project. VOCs were estimated using the VOC submodel of the World Bank's highway design and maintenance (HDM)[1] standards model version III and calibrated for Sri Lanka conditions. The unit VOCs and unit costs for maintenance were adopted from estimates prepared under the feasibility report prepared for the Road Network Improvement Project in 1996.[2] Most of the basic input data used to calculate the VOCs in this feasibility report were developed under the Sri Lanka: Road User Charges Study (1993).

[1] The HDM model simulates total lifecycle conditions and costs, and provides economic decision-making criteria for multiple road design and maintenance alternatives for one road link, a group of roads with similar characteristics, or an entire network.

[2] TCR 2151-SRI: *Technical Assistance for the Preparation of the Road Network Improvement Project*, December 1996.

B. Estimation of Economic Costs and Benefits

1. Traffic and Traffic Growth

4. RDA carries out periodic traffic surveys to assess growth and vehicle composition on selected locations throughout the country. Table A4.1 provides information on average daily traffic and derived traffic growth rates at four locations for the project roads. The overall growth on the roads varied between 6 and 19 percent per annum. Some of these data are only raw daily traffic counts and to that extent of somewhat limited value; however, these are the best available estimates. The appraisal report assumed an annual 4 percent increase in overall traffic and approximately 3,400 vehicles were expected to use the road upon completion of the Project for the Homagama-Avissawella section and 1,380 vehicles on the Avissawella-Hatton section. At project completion, the actual average daily traffic volumes were much higher at about 6,136 vehicles for the Homagama-Avissawella section and 3,746 vehicles for the Avissawella-Hatton section. Because of the higher traffic volumes, the PCR assumed a higher growth rate of 6.5 percent to forecast future traffic on these roads. However, growth is not uniform over all the roads and different rates for each of the three roads would have been more appropriate. The PCR also assumed a base traffic count of 3,746 for the entire Homagama-Hatton road, whereas the actual counts indicate that traffic density falls significantly after about 40 kilometers (km) out from Avissawella. Table A4.1 indicates that traffic volumes after the 40 km point fall to almost one fourth of the initial traffic on the road.

5. The economic analysis is based on actual traffic volumes at four points until 1997. For years beyond 1997, traffic growth of 6 percent per year is assumed until 2005. Given the road alignment and narrow width of many bridges, it does not seem feasible to accommodate large continuous growth without imposing serious congestion costs. It is, therefore, assumed that traffic growth will slow to 4 percent per annum beginning in 2006. Sensitivity analysis is used to assess the impact of this assumption on the overall viability.

Table A4.1: Traffic Growth

Item	Homagama-Avissawella	Avissawella-Ratnapura	Avissawella-Hatton (0-41 kms)	Avissawella-Hatton (42-72 kms)
Average Daily Traffic Volume				
1989	4,450	4,010	2,260	No Survey
1990	No Survey	No Survey	No Survey	420
1993	5,560	4,230	2,850	670
1996	7,595	5,870	3,070	1,141
Growth Rates (in percent per year)				
Before the Project (1987-1994)	9.3	6.3	3.2	16.8
After the Project (1995-1998)	12.0	11.1	11.6	19.4
Average Growth (1987-1997)	9.9	6.0	6.5	18.1

Source: Road Development Authority.

2. Road Conditions

6. Scenarios of the likely road maintenance regimes and resulting conditions with and without the Project were developed based on (i) the analysis of the initial road conditions, (ii) actual conditions of nearby roads not covered by the Project, and (iii) a review of maintenance practices in the districts where the project roads are located. Information on maintenance was also taken from the project preparatory technical assistance[3] for the Road Network Improvement Project Report, which developed a series of maintenance programs designed to maintain a road at various roughness levels. Table A4.2 lists the maintenance regimes and the resulting international roughness indexes (IRIs) indicating the road condition and used for estimating VOC savings given in Figure A4. It is to be noted that the without-project maintenance regime is intended to maintain the roads in usable condition, but that the increasing traffic levels will cause a gradual increase in roughness. Gradual deterioration and increase in roughness is also assumed in the with-project scenario; this is corrected at about year 12-15 by major asphalt resurfacing.

Table A4.2: Maintenance Regime With and Without the Project

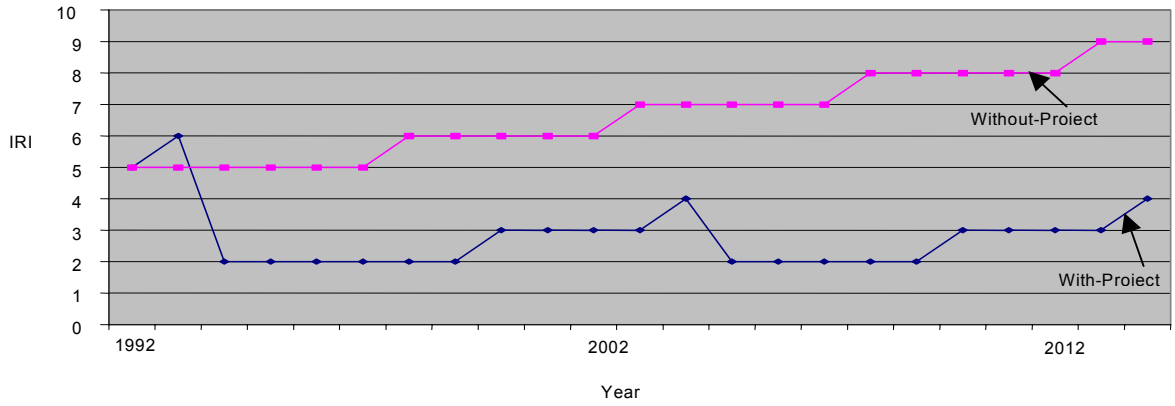
Year	Maintenance Activity With-Project	Maintenance Activity Without The Project
1	Rehabilitation construction work	Routine maintenance, 5 percent patching, 20 percent DBST, 80 percent sand seal, and improve drainage
2	Rehabilitation construction work	2 percent patching and routine maintenance
3	Rehabilitation construction work	3 percent patching and routine maintenance
4	Routine maintenance	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal
5	Routine maintenance	2 percent patching and routine maintenance
6	Routine maintenance	3 percent patching and routine maintenance
7	Routine maintenance	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal
8	Routine maintenance	2 percent patching and routine maintenance
9	Routine maintenance	3 percent patching and routine maintenance
10	Routine and 1 percent surface maintenance and sand seal	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal
11	Routine and 1 percent surface maintenance	2 percent patching and routine maintenance
12	Routine and 2 percent surface maintenance and sand seal	3 percent patching and routine maintenance
13	Routine and 3 percent surface maintenance	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal
14	Routine maintenance and asphalt resurfacing (50 mm)	2 percent patching and routine maintenance
15	Routine maintenance	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal
16	Routine maintenance	2 percent patching and routine maintenance
17	Routine and 1 percent surface maintenance and sand seal	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal
18	Routine maintenance	2 percent patching and routine maintenance
19	Routine and 1 percent surface maintenance and sand seal	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal
20	Routine and 2 percent surface maintenance	2 percent patching and routine maintenance
21	Routine and 3 percent surface maintenance	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal
22	Routine maintenance	2 percent patching and routine maintenance
23	Routine maintenance	Routine maintenance, 5 percent patching, 20 percent DBST, and 80 percent sand seal

DBST = double bituminous surface treatment, mm = millimeter.

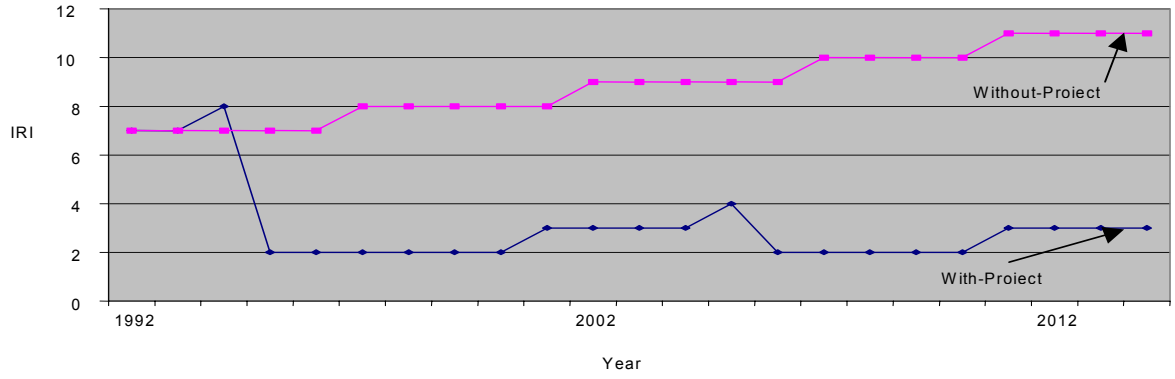
Note: The with-project scenario reflects the actual maintenance regime up to year 7.
Source: Staff estimates.

[3] TA 2151-SRI: *Road Network Improvement Project*, for $700,000, approved on 15 September 1994.

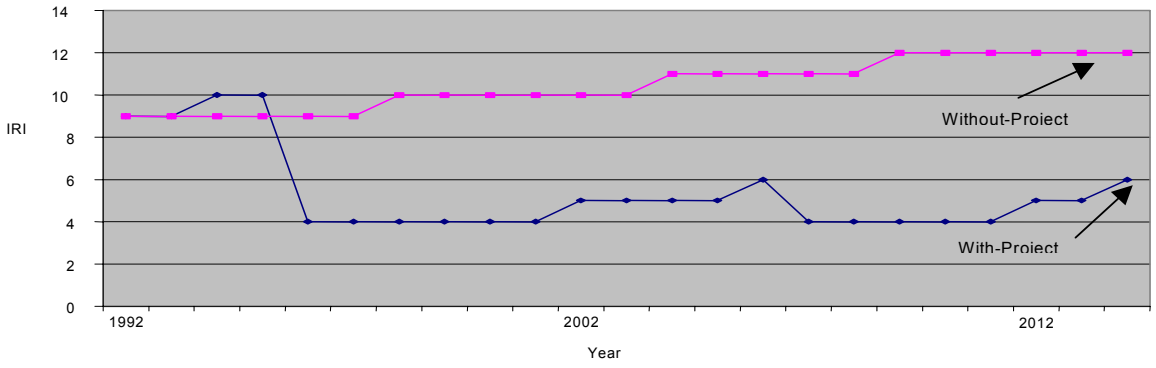
Figure A4: Changes in International Roughness Index Over Project Life
Homagama-Avissawella Road Sector



Avissawella-Ratnapura Road Sector



Avissawella-Hatton Road Sector



IRI = international roughness index.
Source: Staff estimates.

3. Vehicle Operating Cost Savings

7. VOCs were estimated for seven types of vehicles. These estimates were found to be similar to estimates used in recent project feasibility reports in Sri Lanka and to estimates used for a 1999 report under preparation by the Department of National Planning for assessing public investment in the transport sector. Table A4.3 provides estimates of VOCs for different road conditions for the seven types of vehicles. VOCs for motorcycles are not calculated by the HDM and were assumed to be 25 percent of those for passenger cars. Overall VOC savings are derived for each road according to the differences in the IRIs between the with- and without-project scenarios in each year as given in Figure A4, the traffic volumes, and the 1997 vehicle composition for each of the project roads.

Table A4.3: Economic Vehicle Operating Costs for Different Roughness
(SLRs per km)

Type of Vehicles	IRI=2	3	4	5	6	7	8	9	10	11	12
Car	7.4	7.6	7.7	7.9	8.1	8.3	8.6	8.8	9.1	8.4	9.7
Light Truck	6.5	6.7	6.9	7.1	7.3	7.5	7.8	8.0	8.3	8.6	8.9
Medium Truck	8.9	9.2	9.5	9.7	10.0	10.3	10.6	11.0	11.4	11.8	12.2
Heavy Truck	13.9	14.5	15.0	15.6	16.1	16.7	17.3	17.9	18.6	19.3	20.0
Mini Bus	10.2	10.5	10.8	11.0	11.4	11.7	12.2	12.6	13.1	13.7	14.3
Bus	13.7	13.9	14.3	14.6	15.0	15.4	16.0	16.6	17.2	18.0	18.7
Motorcycle	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9

IRI = international roughness index.
Source: TCR 2151-SRI: *Road Network Improvement*, December 1996.

4. Savings in Maintenance Costs

8. The maintenance cost savings were derived as the difference between the costs of the with- and without-project maintenance regimes in Table A4.2. The cost of each maintenance activity was based on the highway standard rates used in Sri Lanka.

5. Project Costs

9. The project investment costs are derived from the actual construction costs and payments made to the contractors for actual work, right-of-way costs, and costs for the supervision. The investment cost includes $350,000 for bridges constructed by the Government outside of the Project.

C. Economic Internal Rates of Return

10. The economic analysis was carried out for each of the three project roads and also for all roads combined (Table A4.4). EIRRs are lower than those estimated at appraisal and in the PCR, in particular, the EIRR for the Avissawella-Hatton, which is only 12.9 percent, despite actual higher growth in traffic volume.

11. The difference in the overall viability compared with the analysis in the PCR is explained by differences in the estimates of investment cost, VOC savings, and maintenance cost savings. The PCR does not provide details about the investment costs used in its analysis so it is not possible to quantify the reasons for the differences in investment costs. The differences in VOC savings can be largely accounted for by differences in the assumptions about road roughness over the life of the project roads. The PCR assumption of a constant roughness throughout the life of the Project was not borne out by the actual conditions. In addition, the roughness increased during the construction phase; this increased VOCs during this period. Thus the Project had negative benefits in the initial period. Traffic volumes beyond 40 km from Avissawella on the Avissawella-Hatton roads were much lower, only about a third compared with the first 40 km, than those assumed in the PCR. The PCR assumed the same level of traffic volumes for the entire length of the road, whereas the current analysis uses different traffic densities for these two road subsections.

Table A4.4: Economic Internal Rate of Return for the Project Roads

Road Section	Appraisal Report or Feasibility Study (%)	Project Completion Report (%)	Operations Evaluation (%)
Project	22.5	20.3	17.1
Road A:			
Appraised road	26.6		
Homagama-Avissawella section		not calculated	17.6
Road B:			
Appraised road	27.3		
Avissawella-Ratnapura section		not calculated	16.2
Road C:			
Appraised road	11.2-26.3		
Avissawella-Hatton section		not calculated	12.9

Source: Appraisal report, project completion report, and staff estimates.

12. The EIRR estimates at appraisal are not directly comparable with those of the PCR and operations evaluation because it was not possible to complete the roads as planned. The appraisal EIRR for the Homagama-Avissawella-Ratnapura-Belangoda road, for example, was 27.3 percent; however, this included benefits and costs related to road lengths of over 80 km beyond the sections completed under the Project. Similarly, actual Avissawella-Hatton road alignment was somewhat different than the one presented in the feasibility report.

D. Sensitivity Analysis

13. Given the quality of data, it was considered important to analyze the sustainability of the Project under different assumptions. Sensitivity analyses were, therefore, carried out for lower traffic growth rates, lower VOC savings, higher and lower maintenance cost savings, and a scenario of inadequate maintenance (Table A4.5). The possibility that road maintenance remains seriously constrained due to paucity of funds is a significant project risk. In such a case, the roads will deteriorate rapidly leading to loss of VOC savings due to higher roughness, reduced traffic growth as traffic diverts to other roads, and shortened road life (by 5-6 years).[4]

[4] A number of projects funded through external aid seem to confirm this practice. The annual road maintenance expenditure is kept at the minimum on such new roads. As a result, the road conditions deteriorate thus limiting the life of the road to no more than 12 years. RDA then rehabilitates such roads almost completely.

Table A4.5: Sensitivity Analysis-EIRR

Project Roads	Base Case	Lower Traffic Growth	Maintenance Cost Savings		10% Lower VOC Savings	Inadequate Maintenance and Reduced Life of Road
			10% higher	10% lower		
All Road Sections	17.1	16.1	17.2	17.0	15.6	7.3
Homagama-Avissawella	17.6	16.7	17.7	17.5	16.3	8.7
Avissawella-Ratnapura	16.2	15.1	16.3	16.1	14.8	8.5
Avissawellla-Hatton	12.9	11.9	13.0	12.8	11.8	4.1

EIRR = economic internal rate of return, VOC = vehicle operating cost.

Table A4.6: Economic Internal Rate of Return

(SLRs million)

Overall Project					Homagama-Avissawella Road Sector				
Years	Project Costs	VOC Savings	Maintenance Cost Savings	Net Benefits	Years	Project Costs	VOC Savings	Maintenance Cost Savings	Net Benefits
1992	400.6	0.0	0.0	(400.6)	1992	143.3	0.0	10.8	(132.5)
1993	543.4	(20.5)	45.2	(518.7)	1993	294.9	(20.5)	5.6	(309.8)
1994	869.3	21.5	18.7	(829.0)	1994	264.7	64.7	6.7	(193.4)
1995	573.2	132.7	26.5	(414.0)	1995		67.8	9.0	76.7
1996	280.0	274.0	36.2	30.2	1996		76.0	5.7	81.7
1997		326.2	23.2	349.3	1997		80.6	6.7	87.3
1998		409.6	25.5	435.1	1998		117.5	7.9	125.4
1999		434.2	35.6	469.8	1999		124.5	3.3	127.9
2000		429.0	18.2	447.2	2000		100.8	2.1	102.9
2001		429.9	7.7	437.6	2001		106.8	5.0	111.8
2002		471.9	23.8	495.7	2002		113.2	0.0	113.2
2003		546.5	3.2	549.7	2003		166.2	(1.0)	165.3
2004		585.6	8.2	593.8	2004		135.9	6.5	142.4
2005		673.0	19.5	692.6	2005		228.6	2.4	231.0
2006		737.0	2.5	739.5	2006		238.9	5.0	244.5
2007		893.7	18.1	911.9	2007		249.6	1.0	250.7
2008		999.2	1.5	1,000.6	2008		326.1	4.6	330.7
2009		1,106.7	21.7	1,128.4	2009		340.8	2.6	343.4
2010		1,104.4	10.7	1,115.1	2010		304.0	3.3	307.3
2011		1,187.0	19.8	1,206.7	2011		317.7	(1.1)	316.6
2012		1,200.8	4.8	1,205.7	2012		332.0	9.6	341.6
2013		1,344.2	23.0	1,367.2	2013		436.2	2.6	438.9
2014	(7.1)	1,294.6	4.8	1,306.4	2014	(1.7)	392.4	24.0	418.1
			EIRR	**17.05%**				**EIRR**	**17.57%**

Avissawella-Ratnapura Road Sector					Avissawella-Hatton Road Sector				
Years	Project Costs	VOC Savings	Maintenance Cost Savings	Net Benefits	Years	Project Costs	VOC Savings	Maintenance Cost Savings	Net Benefits
1992	89.3	0.0	11.2	(78.1)	1992	169.3	0.0	23.2	(146.1)
1993	104.3	0.0	5.6	(98.8)	1993	146.9	0.0	7.5	(139.4)
1994	288.5	(23.1)	7.3	(304.4)	1994	318.5	(20.0)	12.6	(325.9)
1995	172.5	87.9	9.8	(74.8)	1995	400.7	(23.0)	17.5	(406.2)
1996	552.5	105.8	6.5	(440.2)	1996	280.0	92.2	11.0	(176.8)
1997		136.1	7.6	143.7	1997		109.5	11.2	120.7
1998		144.9	10.0	155.0	1998		147.2	17.6	164.8
1999		153.6	2.5	156.2	1999		156.0	12.4	168.4
2000		162.8	2.2	165.1	2000		165.4	3.4	168.8
2001		147.8	6.9	154.7	2001		175.3	11.9	187.2
2002		197.3	1.1	198.4	2002		161.4	2.1	163.5
2003		209.2	2.3	211.4	2003		171.1	6.9	178.0
2004		221.7	3.5	225.2	2004		228.0	9.6	237.5
2005		202.8	(1.1)	201.7	2005		241.7	1.3	242.9
2006		278.3	5.9	284.3	2006		219.7	6.6	226.3
2007		348.4	2.5	351.0	2007		295.7	(2.1)	293.5
2008		364.1	6.0	370.2	2008		309.0	11.1	320.0
2009		380.5	1.9	382.4	2009		385.4	6.2	391.6
2010		397.6	6.0	403.7	2010		402.8	10.4	413.2
2011		448.4	1.1	449.5	2011		420.9	4.8	425.7
2012		468.6	4.6	473.2	2012		400.3	8.7	409.0
2013		489.7	0.0	489.7	2013		418.3	2.1	420.4
2014	(1.7)	511.7	16.5	529.9	2014	(3.6)	390.5	27.4	421.5
			EIRR	**16.20%**				**EIRR**	**12.91%**

EIRR = economic internal rate of return, VOC = vehicle operating cost.

Source: Staff estimates.

SAMPLE OF AN APPENDIX ON FOLLOW-UP ACTIONS

Recommendations for Follow-Up Action		Unit Responsible for		Timing
		Action	Monitoring	
Reevaluation of the Fuel Conversion Project (Loan 880-PRC) Mitigation measures related to good housekeeping, waste disposal, and risk minimization need to be fine-tuned to further ensure environmentally clean operations. The Reevaluation Mission observed problems with the ash pond handling system. The issue of "dust storms" arising from coal ash dispersion and the occasional spillover from the ash pond due to saturation must be addressed with urgency—given the important health and ecological impacts associated with both factors. The following measures need to be taken to minimize or remedy its impacts on the environment:			IEEN	
(i)	improve ash pond management by raising the dike to avoid accidental spills of ash water or flying ash (the work has already started);	CTPP	EPB/ PRCRM	ASAP
(ii)	increase environmental monitoring from the present once-a-year sampling to a more frequent or continuous monitoring, and including more parameters such as total suspended particulates in flue gas and heavy metals in wastewater;	CTPP	EPB/ PRCRM	Within a year
(iii)	consider adopting more strengthened pollution control measures such as electrostatic precipitators (electric scrubber) and sulfur-removal devices;	CTPP	EPB/ PRCRM	3 – 5 years
(iv)	improve wastewater treatment—particularly ash-water treatment—by increasing the degree of treatment to remove not only suspended solids but also heavy metals to minimize groundwater contamination; and	CTPP	EPB	Within 5 years
(v)	undertake associated research activities and invest in more efficient and cleaner technologies.	Huaneng Power Group	EPB	Ongoing

Recommendations for Follow-up Action		Unit Responsible for Action	Unit Responsible for Monitoring	Timing
The challenges facing the Changshan Thermal Power Plant (CTPP) are those faced by most other state-owned enterprises: how to survive the tough market competition conditions and still carry many of the planned-economy's burdens such as overstaffing, lack of freedom in electricity pricing, etc. Despite the constraints, there are many areas where CTPP can improve its management of economic and environmental resources. In the economic sphere, the following measures are recommended:				
(i)	improve staff job training in equipment operation and maintenance, particularly in the area of occupational health and safety;	CTPP	Huaneng Power Group	Immediately
(ii)	gradually disperse its surplus workforce to other sectors, such as related service sectors;	Jilin Prov. Government	Jilin Prov. Government	Up to 5 years
(iii)	vastly improving its office work efficiency by reducing the ranks of officials; and	CTPP/ Huaneng Power Group	Huaneng Power Group	Within 2 years
(iv)	provide better economic information management and forecasting in association with Huaneng Power Group and JEPAB to adapt to the ever-changing electricity market	Huaneng Power Group	IEEN	Immediately

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ASAP = as soon as possible; CTPP = Changshan Thermal Power Plant; EA = Executing Agency; EPB = Environmental Protection Bureau; IEEN = Energy Division, Infrastructure, Energy and Financial Sectors Department (East); JEPAB = Jilin Provincial Electric Power Administrative Bureau; PRCRM = People's Republic of China Resident Mission.

EXAMPLES OF RATING EACH CRITERION

Assessment of Project Achievements in Meeting Subcriteria for Project Outcome Assessment, Sustainability, Institutional, and Other Development Impacts

A. Relevance

Subcriterion	TIA 2 (L388/783/ 936-NEP)	Fuel Conversion (L880-PRC)	Power V & VI (L670/708-NEP)
• Relevance of project preparation to project output at the time of approval	Yes	Yes	Yes
• Relevance of project output to achieve project goals and purposes at the time of approval	Yes	Yes	Yes
• Priority in the context of DMC's development strategy at the time of approval	Yes	Yes	Yes
• Priority in the context of ADB's development strategy for the DMC at the time of approval	Yes	No	Yes
• Priority in the context of DMC's development strategy at the time of evaluation	Yes	No	Yes
• Priority in the context of ADB's development strategy for the DMC at the time of evaluation	Yes	No	Yes
• Priority in the context of one or more of ADB's strategic objectives at the time of evaluation	Yes	No	Yes
• Appropriate changes made at mid-term review/other reviews to make the project more relevant	Yes	No	Yes
Percent of Subcriteria that Met Assessment	100.0	37.5	100.0
Equivalent Rating	Almost all targets 3	Some achievements 1	Almost all targets 3

ADB = Asian Development Bank, DMC = developing member country, NEP = Nepal, PRC = People's Republic of China, TIA2 = Second Tribhuvan International Airport.

B. Efficacy

Subcriterion	TIA 2 (L388/783/ 936-NEP)	Fuel Conversion (L880-PRC)	Power V & VI (L670/708-NEP)
• Achievement of most project physical outcomes	Yes	Yes	Yes
• Achievement of most project intangible outcomes (e.g., technical assistance)	Yes	No	Yes
• The likelihood of project outcomes leading to project goals	Yes	No	No
Percent of Subcriteria that Met Assessment	100	33.3	66.7
Equivalent Rating	Almost all targets 3	Some achievements 1	Most targets 2

NEP = Nepal, PRC = People's Republic of China, TIA2 = Second Tribhuvan International Airport.

C. Efficiency

Subcriterion	TIA 2 (L388/783/ 936-NEP)	Fuel Conversion (L880-PRC)	Power V & VI (L670/708-NEP)
1. Efficiency of investments			
• EIRR > 12 percent (where recalculated at evaluation)	Yes	No	Yes
• FIRR > weighted average cost of capital (where recalculated at evaluation)	No	No	No
• Cost-effectiveness in generating the project outputs	N/A	N/A	N/A
2. Efficiency of process			
• Manner of ADB's internal processing of the project	No	No	Yes
• Organization and management of executing and implementing agencies	No	No	No
• Effectiveness of project management	Yes	Yes	No
• Efficiency in recruiting consultants and other procurement	Yes	Yes	Yes
• Timely and adequate availability of counterpart funding	Yes	Yes	Yes
Percent of Subcriteria that Met Assessment	57.1 Most targets	42.9 Some Achievements	57.1 Most targets
Equivalent Rating	2	1	2

EIRR = economic internal rate of return, FIRR = financial internal rate of return, NEP = Nepal, PRC = People's Republic of China, TIA2 = Second Tribhuvan International Airport.

D. Sustainability

Subcriterion	TIA 2 (L388/783/ 936-NEP)	Fuel Conversion (L880-PRC)	Power V & VI (L670/708-NEP)
• Availability of adequate and effective demand for project services or products	Yes	N/A	Yes
• Probable operating and financial performance of the operational entity and the ability to recover costs	Yes	No	No
• Probability of the existence of appropriate maintenance policy and procedures	No	Yes	No
• Probability of funds availability (cash flow) for continued operations, maintenance, and growth requirement	Yes	No	No
• Probable availability of skills to continue project	Yes	Yes	Yes
• Probable availability of appropriate technology and equipment to operate the project	Yes	Yes	Yes
• Probable availability of the enabling environment (subsidies, tariffs, price competitiveness, and political developments) in which the project is operating at the time of evaluation	No	No	No
• Government ownership and commitment to the project	Yes	No	Yes
• The extent to which the operation affects the environment and renewable or nonrenewable resources	Yes	No	Yes
• The extent to which community participation and beneficiary incentives are adequate to maintain project benefits	N/A	N/A	N/A
Percent of Subcriteria that Met Assessment	77.8 Almost all targets	37.5 Some Achievements	55.6 Most targets
Equivalent Rating	3	1	2

NEP = Nepal, PRC = People's Republic of China, TIA2 = Second Tribhuvan International Airport.

E. Institutional Development and Other Impacts

Subcriterion	TIA 2 (L388/783/ 936-NEP)	Fuel Conversion (L880-PRC)	Power V & VI (L670/708-NEP)
1. Institutional development impacts			
• Country's formal laws, regulations, and procedures	+	-	N/A
• The people's informal norms and practices	+	N/A	+
• Institutional or organizational strengthening	+	+	+
• Institutional skill levels and capacities	+	+	+
• Participatory attitudes of the society	N/A	N/A	N/A
• Macroeconomic or sector policy framework	+	N/A	N/A
2. Other development impacts			
• Impacts on poverty	+	N/A	+
• Impacts on the environment	N/A	-	N/A
• Impacts on social organization	N/A	N/A	N/A
• Impacts on political developments	N/A	N/A	N/A
Percent of Subcriteria that Met Assessment	100	50	100
	Almost all targets	Some achievements	Almost all targets
Equivalent Rating	3	1	3

N/A = not applicable, NEP = Nepal, PRC = People's Republic of China, TIA2 = Second Tribhuvan International Airport.

F. Assessment of Overall Project Performance

Overall Rating of Second Tribhuvan International Airport Project (TIA2)

Criterion	Assessment	Rating (0-3)	Weight (%)	Weighted Rating
Relevance	Highly Relevant	3	20	0.60
Efficacy	Highly Efficacious	3	25	0.75
Efficiency	Efficient	2	20	0.40
Sustainability	Most Likely	3	20	0.60
Institutional Development and Other Impacts	Substantial	3	15	0.45
Overall Rating	**Highly Successful**		**100**	**2.80**