

**TECHNICAL ASSISTANCE
(Financed from the Japan Special Fund)**

TO THE

PEOPLE'S REPUBLIC OF

BANGLADESH

FOR PREPARING THE

REGIONAL RAIL TRAFFIC ENHANCEMENT PROJECT

August 2000

CURRENCY EQUIVALENTS

(as of 31 August 2000)

| | | |
|---------------|---|-----------|
| Currency Unit | – | Taka (Tk) |
| Tk1.00 | = | \$0.0185 |
| \$1.00 | = | Tk54.00 |

The taka is pegged to a basket of six currencies, with the US dollar as the intervention currency. For purposes of calculation in this report, a rate of \$1.00 = Tk54.00 is used. This was the rate generally prevailing during formulation of the technical assistance.

ABBREVIATIONS

| | | |
|-------|---|---|
| ADB | – | Asian Development Bank |
| BR | – | Bangladesh Railway |
| EIA | – | environmental impact assessment |
| ESCAP | – | Economic and Social Commission for Asia and the Pacific |
| IEE | – | initial environmental examination |
| UIC | – | International Railway Union |
| SDR | – | special drawing rights |
| SF | – | Special Funds |
| TA | – | technical assistance |
| UNDP | – | United Nations Development Programme |

NOTES

- (i) The fiscal year (FY) of the Government ends on 30 June.
- (ii) In this report, "\$" refers to US dollars.
- (iii) In this report, "public service obligation" refers to a scheme under which the railway, on behalf of the Government, operates unprofitable railway services.

I. INTRODUCTION

1. The Government of Bangladesh has asked the Asian Development Bank (ADB) for assistance in preparing a project (or sector development program) to continue the restructuring of Bangladesh Railway (BR). The project would entail developing policies and preparing investment packages to promote subregional cooperation and development of rail traffic. The Fact-Finding Mission visited Bangladesh from 30 January to 5 February 2000 and reached an understanding with the Government on the objectives, scope, cost estimates, and terms of reference for the TA.¹ The TA framework is provided in Appendix 1.

II. BACKGROUND AND RATIONALE

2. With a land area of only 144,000 square kilometers, Bangladesh has a high population density: 872 persons per square kilometer. People's mobility is still fairly low, partly because of the dominance of agriculture in the economy. As experienced in other countries, the modal distribution of traffic is steadily shifting to road transport. During the last decade, road transport has grown from 59 to 63 percent of total freight volume; railways' share has slipped from 11 to 9 percent of total freight volume. Similarly, railways' share of total passenger volume has declined from 17 to 13 percent.

3. The shifts in traffic patterns stem largely from steady road transport improvements and declining quality and efficiency of rail services. Institutional shortcomings and physical bottlenecks in terms of poor infrastructure and antiquated rolling stock have reduced the competitiveness of rail. BR is also severely restricted by its two different gauge systems (broad and meter gauge), which is a legacy from the development of the railway network on the Indian subcontinent prior to its partition in 1947. As a result, road transport now dominates the movement of short-haul traffic, and railways concentrate on long-haul transport, particularly freight movements and intercity passenger traffic. Increasing road traffic has in turn led to increasing environmental damage in terms of pollution, congestion, road traffic accidents, and fatalities,² particularly in greater Dhaka, on the high-density corridor between Chittagong and Dhaka, and the northwest region of Bangladesh. Environment-friendlier transport systems³ such as rail transport are needed to prevent increases in environmental damage, improve safety, and save energy, particularly in light of expected high increases in population density⁴ over the next decade. Experience elsewhere shows that public transport, including railways, is increasingly attractive for countries with high population densities to achieve sustainable development.

4. The fairly low transport intensity of the Bangladesh economy as compared with neighboring countries is expected to increase considerably in the coming years. This is mainly because of the increasing demand for freight transport and the expected increase in personal mobility as a result of higher gross domestic product growth at 4 to 5 percent per year and increasing urbanization in the greater Dhaka area. The opening of the Jamuna Bridge⁵ in June 1998 removed one major national transport barrier in Bangladesh. Because of this project and

¹ The TA was first listed in *ADB Business Opportunities* in February 2000.

² The average annual fatality rate for Bangladesh road transport is around 69 per 10,000 registered vehicles, which compares unfavorably with other countries, e.g., 45 in India, 13 in Indonesia, and 7 in Thailand.

³ The external costs for road traffic accidents, air pollution, and noise are about 5 to 10 times higher for road traffic than railway traffic according to research. For example, see, Hansson, Lars. 1995. *Towards Sustainable Transportation—Going from mere words to practice*. International Institute on Industrial Environmental Economics, Lund University; and Earthcan Publications Limited. 1996. *The True Cost of Road Transport*. London.

⁴ The population of Bangladesh grows by more than 2 percent yearly and is expected to double in 2010 putting additional pressure on scarce land.

⁵ Loan 1298-BAN(SF): *Jamuna Bridge Project*, for SDR145,607,000, approved on 8 March 1994.

other ADB-financed road and rail link projects,⁶ freight and passenger transport are expected to increase. These major transport development projects are crucial for physical and economic integration of Bangladesh, linking the western part of the country with the commercial center of Dhaka and the country's primary port of Chittagong, both in the eastern half of the country. They are also important to improve access of the large proportion of poor people living in the agricultural areas in the northwest.

5. Because of its location, Bangladesh is well placed to act as a hub for subregional transport, more effectively linking Bhutan, India, and Nepal; providing access to ports; and offering transit routes for India to its eastern states. While trade is expected to increase among these countries during the next decade, improved trade facilitation and expansion of transport infrastructure, specifically road and rail links, will be crucial to meet the expected increase in transport demand, particularly for freight. Interregional rail traffic between Bangladesh and India is already increasing at about 40 percent per year. This is placing considerable pressure on the existing rail network in Bangladesh, which presently is in very poor condition. These constraints are accentuated by the meter-gauge track network on the eastern side of Jamuna River in Bangladesh and the use of broad-gauge track by Indian Railways. Another major constraint is the outdated operational procedures and cumbersome administrative arrangements at border crossings between Bangladesh and India.

6. The ongoing Jamuna Bridge Rail Link Project will, when completed early in 2002, unite the railway system in Bangladesh. Designed as an interim solution over the medium term, it provides for operation of dual-gauge track⁷ to Dhaka. This will enable both broad- and meter-gauge traffic between the eastern and western parts of Bangladesh, utilizing the Jamuna Bridge until a complete subregional broad-gauge system can be completed. It is envisaged that this broad-gauge system will ultimately connect Chittagong and Dhaka, and also link the eastern and western parts of India through a broad-gauge transit route through Bangladesh. Due to the technical issues, costs involved, and political environment, the inauguration of a complete broad-gauge subregional system may take up to 10 years.

7. To promote subregional trade and cooperation, the World Bank financed a study on trade facilitation and logistics.⁸ This study focused on six major subregional transport (road, rail, and inland water transport) corridors. Four of these corridors include rail links that traverse Bangladesh. The emerging subregional rail network development plan for Bangladesh draws on this study and on the rail strategy developed by the Government and BR with support of TA.⁹ The strategy of the Government is consistent with recommendations made by the Economic and Social Commission for Asia and the Pacific (ESCAP) on the Trans Asian Railway and regional rail network plans developed by the International Railway Union (UIC). ADB, in close cooperation with ESCAP and UIC, is actively pursuing several regional railway issues, including (i) removing or relaxing administrative and technical barriers between railways, (ii) improving cross-border arrangements for more efficient operation, (iii) developing arrangements and agreements for exchange of freight wagons, and (iv) harmonizing technical standards for rolling stock and addressing other standardization issues. These are all important for reducing transport costs and improving the reliability and quality of rail services to increase trade between the countries. Supported by ADB,¹⁰ BR and Indian Railways have jointly established a

⁶ Loan 1478-BAN(SF): *Jamuna Bridge Access Roads Project*, for SDR49,856,000, approved on 5 November 1996; and Loan 1561-BAN(SF): *Jamuna Bridge Railway Link Project*, for SDR80,670,000, approved on 2 October 1997.

⁷ Dual gauge involves the installation of a third rail, allowing both broad- and meter-gauge operations over the same set of tracks.

⁸ World Bank. 2000. *South Asia Regional Corridor Analysis*. Washington, DC.

⁹ TA 1819-BAN: *Organizational Reform of BR*, for \$1.5 million, approved on 22 December 1992.

¹⁰TA 2721-IND: *Railway Sector Improvement*, for \$800,000, approved on 19 December 1996; and TA 1819-BAN: *Organizational Reform of Bangladesh Railway*, for \$1,500,000, approved on 22 December 1992.

task force for subregional railway issues, specifically to address impediments at rail border crossings, harmonize operational procedures, and develop technical standards. As an outcome of these initiatives, it is expected that the existing rail traffic agreement between India and Bangladesh will be revised and renegotiated.

8. ADB's operational strategy for Bangladesh emphasizes poverty reduction. In April 2000, a milestone event took place when the Government and ADB signed a poverty reduction partnership agreement. ADB's operational strategy also stresses private sector participation in infrastructure wherever feasible, and promotes subregional cooperation. In response to the increasing demand for rail transport, ADB's rail strategy aims at restructuring BR into a more commercialized and efficient undertaking. The rail strategy emphasizes development of a harmonized and standardized subregional rail network, offering enhanced freight services and improved access to the poorer areas. During the last decade, the Government, supported by ADB, has made notable progress in restructuring BR. Under the Railway Recovery Program,¹¹ which was implemented from 1994 to 1998,¹² the Government took significant steps to commercialize and restructure BR; this largely involved restructuring the organization, introducing new tariff policies, and reducing staff numbers (from 55,400 in 1992 to 38,100 in 1999). As the next step in reform, the Government aims to restructure BR along commercial lines by separating operations from infrastructure and introducing rail concessions with private sector participation. This follows best practices adopted in other countries.¹³ Because of the complexity and long-term nature of the railway reform program, the Government has separately asked ADB to provide advisory TA to develop the necessary regulatory and institutional framework.

9. Since the mid-1970s ADB has been the lead agency in the rail sector and has provided four loans totaling \$259 million, and 14 TAs totaling \$3.4 million. ADB has been involved in several TAs with the United Nations Development Programme (UNDP) and bilateral funding agencies. Bilateral agencies active in the sector include the Canadian International Development Agency, France, Kreditanstalt für Wiederaufbau and Deutsche Gesellschaft für Technische Zusammenarbeit of Germany, and Spain. More information on the external assistance to the rail sector is provided in Appendix 2.

¹¹Loan 1310-BAN(SF): *Railway Recovery Program*, for SDR58,135 million, approved on 8 September 1994.

¹²The project completion report (PCR: BAN 24000) rated this project as generally successful, achieving its intended objectives.

¹³Separation of rail infrastructure and operations and introduction of rail concessions has developed as one of the best practices adopted for small- to medium-sized railways with mixed passenger and freight traffic, notably in Africa, Europe and South America.

III. THE TECHNICAL ASSISTANCE

A. Objective

10. The objective of the TA is to assist the Government to prepare a policy program and investment package that promote subregional rail traffic.

B. Scope

11. The main tasks of the TA include (i) define appropriate institutional arrangements and operating principles, including conventions and other agreements required to promote international rail traffic with efficient cross-border and customs procedures; (ii) prepare a policy matrix summarizing the objectives, goals, outputs, and assumptions for the regional traffic enhancement program; (iii) assess the appropriate role for railways, and estimate the subregional demand for rail traffic; (iv) based on forecasted demand, estimate investment requirements and prepare a prioritized investment plan for a 10-year period, and update the staff rationalization plan, including appropriate retraining and redeployment schemes; (v) assess the costs and benefits of the proposed investments and prepare a financing plan; (vi) review the tariff-setting procedures, recommend a tariff regulation policy and a charging structure for the use of infrastructure for international rail traffic, and propose appropriate tariff rates; (vii) evaluate the financial performance of BR taking into account the proposed investment program, and prepare financial projections for a 10-year period; (viii) carry out financial and economic analysis of the investments including risk analysis; (ix) carry out social analysis, and estimate the effects on households and areas classified as poor, and if required, prepare a resettlement plan; and (x) undertake initial environmental examination, and if required, environmental impact assessment. The terms of reference for the consultants are given in Appendix 3.

C. Cost Estimates and Financing Plan

12. The TA is estimated to cost \$1,130,000 equivalent; \$710,000 is the foreign exchange cost and \$420,000 equivalent the local currency cost. ADB will provide \$900,000 equivalent on a grant basis from the Japan Special Fund, funded by the Government of Japan to cover the entire foreign exchange cost and \$190,000 equivalent of the local currency cost. The Government will provide the remaining local currency of cost of \$230,000 equivalent by providing office accommodation, support facilities, local communications, and counterpart staff. The Government has been informed that ADB approval does not commit ADB to finance any subsequent program or project. The detailed cost estimates and financing plan are shown in Appendix 4.

D. Implementation Arrangements

13. About 26 person-months of international and about 26 person-months of domestic consultants will be required with expertise in international railway operations, railway restructuring, railway engineering, financial and economic analysis, traffic costing, and environmental and social analysis and human resource development. The TA consultants will be engaged in accordance with ADB *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB on the engagement of domestic consultants. Office equipment will be procured in accordance with ADB *Guidelines for Procurement*. The Government has been informed about the ADB Anticorruption Policy in relation to the ethical standards to be maintained during recruitment of consultants.

14. BR, which has extensive experience in implementing ADB-financed projects, will be the Executing Agency. It will appoint a project director acceptable to ADB. The project director will

liaise with the consultants and coordinate the work under the guidance of the director general of BR. The project director will assist the consultants in organizing high-level meetings, workshops, seminars, and all other related activities under the TA. Given the subregional dimension of the TA, the consultants will undertake consultations with Indian Railways and transport officials in Bhutan and Nepal. The consultants will coordinate the work with other externally financed consultants in the rail sector. There will be regular review meetings involving the Government, consultants, and ADB. The TA is expected to commence on 1 December 2000 and be completed by 30 June 2001. The consultants will submit inception, interim, draft final, and final reports.

III. THE PRESIDENT'S DECISION

15. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance, on a grant basis, to the Government of the People's Republic of Bangladesh in an amount not exceeding the equivalent of \$900,000 for the purpose of preparing the Regional Rail Traffic Enhancement Project and hereby reports such action to the Board.

**TECHNICAL ASSISTANCE FRAMEWORK
REGIONAL RAIL TRAFFIC ENHANCEMENT PROJECT**

| Design Summary | Performance Indicators/Targets | Monitoring Mechanisms | Assumptions and Risks |
|--|---|---|---|
| <p>Goals</p> <p>1. Increase competitiveness of rail transportation and promote subregional rail traffic.</p> <p>2. Introduce rail competition by bidding out rail operation concessions of operations and private sector investments.</p> | <p>Transport cost proportion of export price. Cost of subregional rail traffic, including transit routes</p> <p>Concession and contracting out agreements. Reduced costs of operations and purchases. Increased investments</p> | <p>Export price statistics and transport cost estimates. Transport cost estimates</p> <p>Government reports on railway sector. Annual reports for Bangladesh Railway (BR)</p> | <p>Political commitment to subregional traffic. Sustained demand for exports. Sustained demand for subregional traffic. BR capable of managing multiple providers and suppliers</p> |
| <p>Objectives</p> <p>1. Prepare a subregional traffic enhancement program, comprising a policy program and investment plan.</p> <p>2. Prepare a plan for divestment of assets and private sector involvement.</p> <p>3. Prepare a plan to increase efficiency of BR operations.</p> | <p>Policy and investment plan completed and accepted</p> <p>Reduction of state-owned share of railway sector assets</p> <p>Increased rolling stock utilization. Reduced train times</p> | <p>Tripartite meetings</p> <p>BR annual reports. Monitoring program</p> <p>Performance monitoring reports. Management information system</p> | <p>Financial resources available. Debt service capacity of BR. Government commitment to restructuring program</p> <p>Attraction of private sector funds. Successful establishment of separated enterprises</p> <p>Proper maintenance and operational procedures</p> |
| <p>4. Ensure financial sustainability of BR.</p> <p>5. Identify program components to maintain income for affected people and households.</p> | <p>Financial ratios</p> <p>Household incomes. Proportion employed. Small businesses established</p> | <p>Audited financial statements</p> <p>Special surveys. Project monitoring reports</p> | <p>Debt service management. Government payments for public service obligations</p> <p>Government commitment to social program components. BR sourcing policy</p> |
| <p>6. Enhance railway management capabilities.</p> | <p>Qualifications and experience of railway staff</p> | <p>Annual reports. Project monitoring reports</p> | <p>Maintenance of employment incentives in Ministry and BR</p> |

(Reference in text: page 1, para. 1)

| Design Summary | Performance Indicators/Targets | Monitoring Mechanisms | Assumptions and Risks |
|--|--|--|--|
| Outputs 1. Subregional traffic enhancement program and action plan 2. Social cost reduction measures 3. Assessment of investment options 4. Evaluation of track and other investments 5. BR financial projections 6. Enhanced management skills | Agreed program and implementation plan. Contract management system Credit facility. Training program. Other measures Investment and financing plan Technical, economic, financial, social, and environmental appraisal. Financial plans Training program | Technical assistance (TA) final report TA final report TA final report. BR investment plan. Government budget documents TA final report TA final report TA final report | Government approval of recommendations Government approval. Coordination of external funding agencies Government priorities for railway sector Coordination of external funding agencies Agreement on Government payment and tax arrangements. Agreed charge levels and policy |
| Inputs 1. Consulting services 2. Counterpart staff 3. Logistical support 4. TA financing | Around 52 person-months (26 international and 26 domestic) Provision by BR and other Government organizations Equipment and office space. Transport. Translation and interpretation Up to \$900,000 as ADB grant | Evaluation of consultant proposals. Selection of consultant team Consultant progress reports Consultant progress reports Contract negotiations | Good quality consultants and proposals. Coordinated inputs from Government Counterpart staff available at required time Space, vehicles, and personnel available when required Government contribution made available |

EXTERNAL ASSISTANCE TO THE RAILWAYS SUBSECTOR

1. The Asian Development Bank is the lead assistance agency in the railway sector, has made four loans totalling \$259 million and 14 technical assistance (TAs) totaling \$3.4 million. The first two loans¹ focused on rehabilitating the most important main lines. These projects covered the rehabilitation of the meter-gauge line from Chittagong to Dhaka and on the broad-gauge line from Khulna to Parbatipur in the West Zone, including components to improve the rolling stock and maintenance facilities. Two other ADB loans² had components to restore the flood-damaged railway infrastructure. The policy-based Railway Recovery Program loan was ADB's third loan for the railway sector. To support the implementation of the Program, ADB has financed three advisory TAs. In support of organizational reform of Bangladesh Railway (BR), a comprehensive rail sector study³ was carried out to address pertinent sector issues and prepare a railway reform program. Following Cabinet approval in July 1995, a second phase TA⁴ was approved to implement the recommended reform measures. To monitor the implementation and progress of the railway reform program, ADB financed a small-scale advisory TA.⁵ In December 1994, ADB approved a TA to prepare the Jamuna Bridge Railway Link Project. The Project,⁶ comprising a dual-gauge railway track on the Jamuna Bridge and approaches connecting to the existing railway system on both sides of the Jamuna River, was approved in October 1997.

2. ADB and the United Nations Development Programme (UNDP) have been jointly involved in several TA projects in the railway sector. Two UNDP grants⁷ covering intermodal transport and advisory TAs have been administered by ADB. UNDP has also financed the Bangladesh Transport Sector Study, with the World Bank as the Executing Agency; it was implemented during 1996 and 1997. Bilateral agencies, active in the railway sector such as Canadian International Development Agency, France, Kreditanstalt für Wiederaufbau and Deutsche Gesselschaft für Technische Zusammenarbeit of Germany, and Spain, support the railway reform program and look to ADB as the lead agency in giving BR direction for implementation of reform measures.

¹ Loan 215-BAN(SF): *Railway Project*, for \$23 million, approved on 23 December 1974; and Loan No. 684-BAN(SF): *Second Railway Project*, for SDR39,019,779, approved on 26 June 1984.

² Loan 892-BAN(SF): *Flood Damage Restoration (Roads and Railways) Project*, for SDR28,220,762, approved in June 1998; and Loan 976-BAN(SF): *Second Flood Damage Restoration Project*, for SDR67,627,333, approved in August 1989.

³ TA 1819-BAN: *Organizational Reform of BR*, for \$1.5 million, approved on 22 December 1992.

⁴ TA 2544-BAN: *Organizational Reform of BR*, for \$1.0 million, approved on 21 March 1996.

⁵ TA 2230-BAN: *Monitoring of Railway Recovery Program*, for \$100,000, approved on 9 December 1994.

⁶ Loan 1561-BAN(SF): *Jamuna Bridge Railway Link Project*, for SDR80,670,000, approved on 2 October 1997.

⁷ TA 567: *Intermodal Transport Study*, for \$358,000, approved on 9 January 1984 and TA 607: *Second Railway*, for \$990,000, approved on 26 June 1984.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Scope of Work

1. The technical assistance (TA) will be implemented in two concurrent parts. Part I will include a review on subregional railway issues, such as cross border traffic, and include consultation with stakeholders from Bangladesh Railway (BR), transport officials from Bhutan, India and Nepal, freight clients, passengers, and others. Part I will generate a program with key policies and a related action plan for enhanced subregional rail traffic. Part II will include the evaluation of specific investments and preparation of an investment package with appropriate procurement and financing arrangements.

B. Part I – Preparation of a Policy Program for Improved Subregional Rail Traffic

2. Activities include the following:

- (i) Review best demonstrated practices for international rail traffic, specifically cross-border traffic, operating procedures, technical and safety standards, and charging structures.
- (ii) Review previous studies and current practices of rail traffic between Bangladesh and India.
- (iii) Review the legal and regulatory framework, including custom formalities with respect to international rail traffic.
- (iv) Review the existing rail traffic agreement between Bangladesh and India.
- (v) Assess the trends in the demand for subregional rail services and specify the appropriate role of railways.
- (vi) Prepare an updated regional rail traffic forecast, including for major export and import commodities, future rail transit traffic, and domestic traffic.
- (vii) Identify the proportion of transport costs in the prices of the major export and import commodities, and in the tariffs for international traffic.
- (viii) Determine the need for future investment to meet the rail traffic forecasts and BR operational requirements.
- (ix) Prepare a prioritized investment plan for a 10-year period and corresponding financing plan.
- (x) Review and, if required, redesign the staff rationalization program with appropriate retraining and redeployment schemes, all consistent with the recommendations and procedures adopted under the TA for Organizational Reform of BR, Phase II.
- (xi) Assess the costs and benefits of the main infrastructure improvement and upgrading components, and confirm the choice of an investment component for ADB support.
- (xii) Assess investment priorities on the basis of operational requirements, provide budgetary estimates and a time frame, and estimate the operational and financial benefits to BR.
- (xiii) Review the current process for setting rail tariffs, and recommend a tariff regulation policy, appropriate tariff rates for sustainable operations, and charging structure for use of infrastructure in a competitive transport sector environment.

(Reference in text: page 4, para. 11)

- (xiv) Design a policy matrix summarizing the goals, objectives, outputs, and assumptions for the project.
- (xv) Draw up a set of indicators for monitoring the implementation of the project and its development impact, including its impact on the poor.
- (xvi) Evaluate the financial performance of BR and, taking account of the proposed investment program, asset restructuring, and operational improvements, prepare financial projections for BR, without and with the project, to the year 2010.
- (xvii) Identify the financial costs of each component of the project, and their timing, and future financial savings.
- (xviii) Evaluate BR financial capacity for undertaking the project, and likely sources and amounts of private sector investment.
- (xix) Prepare financial projections for a 10-year period, calculate appropriate financial ratios, including the working, operating, debt to equity, and debt-service ratios, and identify a set of financial covenants for achieving financial sustainability for BR.
- (xx) Carry out an initial social assessment to identify possible social impacts of the project and carry out a detailed social impact assessment of the identified social issues in accordance with ADB's *Guidelines for Incorporation of Social Dimensions in ADB Operations* and ADB's *Handbook for Incorporation of Social Dimensions in Projects*, and in full consultation with those who will be adversely affected. Include an assessment disaggregated by gender and possible effects on the poor and vulnerable groups, and recommend measures to mitigate or compensate those adversely affected.
- (xxi) Undertake and document consultations with affected employees and the public. Make recommendations for effective consultation and participation of affected persons during project implementation. Assess the social costs of the project, and the extent to which passengers are willing and able to pay for railway services. Propose measures to enhance the participation of women in employment and other opportunities.
- (xxii) Assess both positive and negative impacts of the project on households and people classified as poor. Identify a suitable agency for monitoring the social impact of the program, especially on poor and vulnerable groups.

C. Part II – Preparation of Investment Package

3. Activities for the part include the following:

- (i) Prepare feasibility studies for an investment package for rehabilitation and modernization of priority elements of infrastructure and rolling stock, including technical, economic, financial, environmental, and socioeconomic aspects.
- (ii) Assess the technical standards and design proposed for each investment component. Estimate the resulting operational improvements for the investment and the network as a whole and if converting the rail network, to broad gauge. Review the status of connecting lines in the network and identify any constraints on realizing the benefits. Prepare cost estimates for the investment component including environmental mitigation costs and physical contingencies at a rate of at least 10 percent. Estimate the direct and indirect foreign exchange and the local currency cost. Include price contingencies using a constant real exchange rate, and interest and other charges during implementation.

- (iii) Prepare a proposed list of contract packages for ADB-financing, domestic financing, and international financing, with contract values and the mode of procurement.
- (iv) Prepare organizational arrangements for project implementation and prepare an implementation schedule.
- (v) Review demand for main transport corridors of the investment. Confirm a forecast of freight and passenger traffic for the period of improvement and a further 10 years. Assess the provisions for rail border crossings for freight and passengers.
- (vi) Identify all costs and benefits comparing the without and with investment situations.
- (vii) Consider benefits to traffic on the investment section and to traffic on related parts of the rail network. Undertake an economic analysis of the investment following ADB's *Guidelines for the Economic Analysis of Projects*. Make separate estimates of benefits from improvement in physical infrastructure and those from improved operating efficiency as a result of reforms and restructuring. Estimate the economic internal rate of return at constant economic prices, including environmental and socioeconomic effects as far as possible. Use an appropriate standard conversion factor and appropriate conversion factors for scarce and surplus labor. Make a separate estimate of externalities with and without the project in accordance with best international practices.
- (viii) Undertake sensitivity and risk analysis to assess the effects of adverse changes. Calculate switching values for the key variables and assess their likelihood of occurring. Recommend mitigating measures to reduce uncertainty during implementation and operation.
- (ix) Estimate the direct and indirect impact of the investment, and assess the distribution of the economic benefits between BR, rail transport users, the Government, other stakeholders, and other countries. Estimate any effects of the investment on households and areas classified as poor.
- (x) Estimate the financial internal rate of return, both before and after tax, following ADB's *Guidelines for Preparation and Presentation of Financial Analysis*. Compare the financial and economic returns and the reasons for the difference. Assess the impact of the investment on the financial projections for BR.
- (xi) Identify risk factors and undertake sensitivity analysis for adverse changes by varying tariff rates, traffic volumes, investment and other costs, implementation delay, combinations of these factors, and a one-off exchange rate devaluation during implementation. Assess the financial and economic returns at different tariff levels.
- (xii) Undertake an initial environmental examination (IEE) of the investment component and prepare a summary IEE in accordance with the *Environmental Review Procedures of ADB* and *ADB's Environmental Guidelines for Selected Infrastructure Projects*. Consider temporary and permanent environmental effects. If necessary, prepare an environmental impact assessment (EIA) and a summary EIA following the *Environmental Assessment Requirements of the Asian Development Bank*. Recommend mitigation measures, an environmental monitoring program, and an institutional setup for undertaking it, and a cost estimate.
- (xiii) Undertake an initial social assessment of the investment component. Carry out a detailed social impact assessment of identified social dimensions for the

investment component. Recommend measures relating to participatory development strategies involving affected people and targeting assistance on vulnerable groups including the poor.

- (xiv) Identify any requirements for land acquisition and resettlement. Assist the Government in preparing a resettlement plan in conformity with ADB's policy on involuntary resettlement. Establish a schedule for consultations with those affected and a resettlement mechanism for monitoring and evaluation of the land acquisition and resettlement process.

D. Reporting Requirements

4. The consultants are required to provide the following reports, including computer diskettes containing all data and financial and economic calculations, according to the following schedule: (i) an inception report, two weeks after commencement; (ii) a draft initial social assessment, five weeks after commencement; (iii) a draft IEE, five weeks after commencement; (iv) an initial social assessment, four months after commencement; (v) an IEE and a summary IEE, four months after commencement; (vi) a draft final report, five months after commencement; (vii) a draft resettlement plan, five months after commencement; (viii) a final report, seven months after commencement; and (ix) if required, (a) an EIA, six weeks after receiving the request from ADB; and (b) a summary EIA, six weeks after receiving the request.

5. Three copies of all reports will be submitted to ADB and the Government in the English language. Brief progress reports should be submitted monthly to ADB and the Government.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

| Item | Foreign Exchange | Local Currency | Total Cost |
|--|---------------------|-------------------|----------------|
| A. Asian Development Bank Financing^a | | | |
| 1. Consultants | | | |
| a. Remuneration and Per Diem | | | |
| i. International Consultants | 528.0 | 0.0 | 528.0 |
| ii. Domestic Consultants | 0.0 | 130.0 | 130.0 |
| b. International and Local Travel | 20.0 | 10.0 | 30.0 |
| c. Reports and Communications | 15.0 | 5.0 | 20.0 |
| 2. Equipment ^b | 30.0 | 5.0 | 35.0 |
| 3. Miscellaneous Administration and Support Costs including Workshops | 6.0 | 0.0 | 6.0 |
| 4. Representative for Contract Negotiations ^c | 6.0 | 0.0 | 6.0 |
| 5. Contingencies | 96.0 | 27.0 | 123.0 |
| Subtotal (A) | 710.0 | 190.0 | 900.0 |
| B. Government Financing | | | |
| 1. Office Accommodation and Transport | 0.0 | 85.0 | 85.0 |
| 2. Local Communications | 0.0 | 45.0 | 45.0 |
| 3. Remuneration and Per Diem of Counterpart Staff | 0.0 | 100.0 | 100.0 |
| Subtotal (B) | 0.0 | 230.0 | 230.0 |
| Total | 710.0 | 420.0 | 1,130.0 |

^a Japan Special Fund.

^b Computers, printer, software, and a photocopier.

^c Cost of travel and per diem for Government observer invited by ADB for contract negotiations with the consultants at headquarters, and consultations in Manila during the study.

Source: Staff estimates.

(Reference in text: page 4, para. 12)