



# Technical Assistance Report

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Project Number: 36330  
November 2007

## India: Preparing the Railway Sector Investment Program (Financed by the Japan Special Fund)

Asian Development Bank

## CURRENCY EQUIVALENTS

(as of 23 November 2007)

Currency Unit	–	Indian rupee/s (Re/Rs)
Re1.00	=	\$0.0253
\$1.00	=	Rs39.5250

## ABBREVIATIONS

ADB	–	Asian Development Bank
EA	–	executing agency
EIA	–	environmental impact assessment
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
FY	–	fiscal year
IA	–	implementing agency
IEE	–	initial environmental examination
IPDF	–	indigenous peoples development framework
IPDP	–	indigenous peoples development plan
IR	–	Indian Railways
MFF	–	multitranches financing facility
MOR	–	Ministry of Railways
PPTA	–	project preparatory technical assistance
RF	–	resettlement framework
RP	–	resettlement plan
RVNL	–	Rail Vikas Nigam Ltd.
TA	–	technical assistance
TOR	–	terms of reference

## TECHNICAL ASSISTANCE CLASSIFICATION

<b>Targeting Classification</b>	–	General intervention
<b>Sector</b>	–	Transport and communications
<b>Subsector</b>	–	Railways
<b>Theme</b>	–	Sustainable economic growth
<b>Subtheme</b>	–	Fostering physical infrastructure development

## NOTES

- (i) The fiscal year (FY) of the Government and its agencies ends on 31 March. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2000 ends on 31 March 2000.
- (ii) In this report, "\$" refers to US dollars.

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<b>Director General</b>	K. Senga, South Asia Department (SARD)
<b>Director</b>	K. Higuchi, Transport and Communications Division, SARD
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# INDIA RAILWAY SECTOR INVESTMENT PROGRAM



## I. INTRODUCTION

1. The Government of India has requested technical assistance (TA) from the Asian Development Bank (ADB) to prepare the proposed Railway Sector Investment Program for possible ADB financing. The Fact-Finding Mission visited India 6–10 August 2007 and met with the Department of Economic Affairs, Ministry of Finance, and the Ministry of Railways (MOR). This project preparatory technical assistance (PPTA) was developed based on the Government's concurrence with the impact, outcome, outputs, implementation arrangements, cost, financing arrangements, and terms of reference (TOR). The design and monitoring framework is in Appendix 1.<sup>1</sup>

## II. ISSUES

2. The Indian economy has become a leading global performer in recent years as reforms initiated in 1991 significantly increased its growth rates. The long-term trend rate of growth rose from 3.5% in the 1950s–1970s to 5.4% in the 1980s, 6% in the 1990s, and more than 8% in recent years. This led to a decrease in poverty incidence—recent Planning Commission estimates indicate that poverty incidence has fallen from 36% in 1993–1994 to 27% in 2004–2005.<sup>2</sup> However, poverty remains high, and faster economic development is needed to generate the resources required to reduce its incidence. The Eleventh Five-Year Plan (2007–2012) emphasizes physical and social infrastructure development to promote broad-based economic growth, develop agriculture and the rural economy, and safeguard the competitiveness of industry and services. During the plan's period, investment in infrastructure must be raised from 4.6% of the gross domestic product to about 8% to sustain an overall growth rate of 9% per annum.

3. The inadequacy of India's transport infrastructure is constraining the country's growth. Transport infrastructure development programs are high priorities for the Government, making ADB's strategy of reducing poverty through infrastructure-led growth especially relevant. Railways are a significant component of India's transport sector—in FY2006, railways carried 5.73 billion passengers and 666.51 million tons of freight, increases of 6.5% and 10.7%, respectively, over the previous fiscal year.

4. Indian Railways (IR) faces capacity constraints and needs to augment capacity on critical routes, e.g., along the Golden Quadrilateral and diagonals that connect the cities of New Delhi, Mumbai, Kolkata, and Chennai. Capacity constraints must be alleviated by an increase in and more efficient utilization of the physical infrastructure. Doubling and quadrupling rail tracks on critical routes would increase the physical infrastructure, while the introduction of modern signaling systems that can increase the capacity of the existing tracks would improve the efficiency of infrastructure usage.

5. Although the absolute amount of funds allocated for IR has increased over the years, the funds allocated to the railways as a percentage of the total allocation decreased from 7% in the Eighth Plan to 4% in the Tenth Plan. Therefore, it is imperative for IR to generate more funds through its operations to finance the needed expansion programs. The results of the accounting

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<sup>1</sup> The TA first appeared in *ADB Business Opportunities* on 16 August 2007.

<sup>2</sup> Based on consumption expenditure data collected during the National Sample Survey Organisation's 61<sup>st</sup> round using a 30-day recall period for all items, e.g., the uniform recall period consumption distribution.

reforms currently being implemented can facilitate greater commercialization of railway operations, thereby increasing revenue generation.

### III. THE TECHNICAL ASSISTANCE

#### A. Impact and Outcome

6. The impact of the PPTA will be to enhance the carrying capacity and organizational efficiency of IR by double-tracking existing railway lines in critical sections and electrifying other lines. Efficiency improvements to enhance the commercialization of railway operations and decision making also will be prepared. The outcome of the PPTA will be to formulate the agreed design for a proposed investment program, using the multitranche financing facility (MFF), and to prepare the first two loan tranches under this investment program.

#### B. Methodology and Key Activities

7. **Engineering and Project Management Analysis.** The PPTA will (i) review the technical and engineering aspects of the techno-economic studies prepared by IR for the proposed projects under the first two loans of the investment program, and assess whether the studies are based on uniform design methodologies and standards; (ii) visit project sites as necessary; (iii) carry out an institutional assessment of Rail Vikas Nigam Ltd. (RVNL), the likely Implementing Agency (IA) as well as other implementing agencies identified by MOR, focusing on the suitability of the staff's strength and expertise, as well as RVNL's and other identified IA's authority for successful project management; and (iv) prepare contract packages that optimize the construction periods of the packages by expediting disbursement and minimizing commitment charges to be paid by the Government on the outstanding balance of the proposed loan.

8. **Economic and Sector Analysis.** The PPTA will (i) supplement IR's efforts to ensure that the economic analyses of the proposed projects are carried out in accordance with ADB's *Guidelines for the Economic Analysis of Projects*; (ii) review and improve as necessary IR's studies, including the traffic forecast, cost estimates, and benefits; (iii) perform additional surveys as necessary; and (iv) recalculate the economic internal rate of return (EIRR) and carry out sensitivity analyses with the projects' risk assessments;

9. **Financial Analysis.** The PPTA will (i) carry out financial analyses of the proposed projects in accordance with the *Guidelines on the Financial Governance and Management of Investment Projects Financed by ADB*; (ii) review project cost estimates, propose a financing plan, prepare financial projections and the financial internal rate of return (FIRR), and compare the FIRR with the weighted average cost of capital; (iii) conduct sensitivity analysis with the projects' risk assessments; and (iv) assess the financial management of RVNL and other identified IA to determine its capability for efficient project management, including financial management and control systems.

10. **Environmental Assessment.** The PPTA will prepare feasibility studies, including environmental impact assessments (EIA) or initial environmental examinations (IEE), for each projects proposed for financing by the first two loans of this proposed investment program. Important considerations in undertaking an environmental assessment include (i) examining alternatives; (ii) identifying potential environmental impacts, including direct and cumulative impacts, and assessing their significance; (iii) achieving environmental standards; (iv) designing least-cost mitigation measures; (v) developing appropriate environmental management plans

and monitoring requirements; (vi) formulating institutional arrangements; and (vii) ensuring information disclosure, meaningful public consultation, and appropriate reporting of results. The TA consultants will carry out the environmental assessments closely following the relevant requirements of the Government and ADB, and using appropriate environmental assessments already undertaken by IR. Environmental assessments will refine the investment program's eligibility criteria, including specific environmental criteria and concerns that must be examined carefully during subproject selection, design, appraisal, and implementation. For each environmentally sensitive subproject, a summary EIA or summary IEE will be formulated based on the subproject's EIA and IEE.

11. **Social Impact and Resettlement Analysis.** The PPTA will assist in identifying social issues, e.g., involuntary resettlement and indigenous peoples, in each proposed project and in formulating required planning instruments, e.g., resettlement framework (RF), indigenous (tribal) peoples development framework (IPDF), resettlement plans (RPs), and indigenous peoples development plans (IPDP). In formulating such planning instruments, the TA consultants will closely follow national and state-level land acquisition, compensation, relocation, and rehabilitation policies, laws, and regulations. With the Executing Agency (EA) and state government authorities, the consultants will ensure that the RF and IPDF adequately address ADB's *Involuntary Resettlement Policy* (1995) and *Policy on Indigenous Peoples* (1998) safeguards, respectively. The EA and ADB will review the frameworks before approving them. Based on the approved RF and IPDF, the PPTA consultants will formulate an RP for each of the six proposed projects that will have involuntary resettlement impacts, and an IPDP or "special action" for each proposed project that will impact indigenous peoples. The RF and IPDF will be disclosed on the ADB website. The RPs will be disclosed to all affected persons and project stakeholders and posted on the ADB website before project appraisal. The summary initial poverty and social analysis is in Appendix 2.

12. **Sector Analysis and Efficiency Improvement Analysis.** The PPTA will (i) identify incremental efficiency improvements to enhance IR's financial and operational efficiency, including promoting greater commercialization and better aligning its organizational structure with its core activities; (ii) identify new measures that emerge from the implementation of IR's accounting reforms so that the new accounting system's output is used for improved investment and operational decision making; (iii) carry out the ADB-required analysis of the railway sector to process follow-on projects using the MFF modality, including preparing the sector road map showing the sector's current status, and objectives, and the medium- and long-term envisioned status, and identifying the sector's strengths and weaknesses. The sector road map will also discuss the bottlenecks to improvement, the risks and areas in which improvement is required, and the strategy for improving the sector and identifying the sector objectives. The investment program will be based on the Eleventh Plan's investment plans for railways and should show (i) the sequencing of the investments, (ii) the approach used to finance this investment and development plan, (iii) analysis of the efficiency improvement measures identified in the Eleventh Plan and annual budget plans, and (iv) railway sector capacity development measures necessary to process follow-on projects using the MFF modality.

### C. Cost and Financing

13. The total cost of the PPTA is estimated at \$1.25 million equivalent, comprising \$480,000 in foreign exchange cost and \$770,000 equivalent in local currency cost. The details of the cost estimates are in Appendix 3. The TA will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan. The Government will finance \$250,000 equivalent

by providing office accommodation, support facilities, counterpart staff, maps, reports, and other logistical support. The Government has been informed that approval of the TA does not commit ADB to finance any ensuing project.

#### **D. Implementation Arrangements**

14. MOR, as the EA, will appoint a project director responsible for day-to-day supervision of the PPTA. The Government will provide the required counterpart staff; office space; furniture; support facilities for surveys, maps, and reports; and other support services to the consultants in a timely manner. All equipment for the PPTA will be procured according to ADB's *Procurement Guidelines* (2007, as amended from time to time) and will be turned over to MOR upon PPTA completion.

15. An international consulting firm that can supply a team with expertise in railway engineering and economic analysis of transport projects will be recruited for the PPTA. National consultants in these two fields, financial analysis and social analysis will be engaged by the international consulting firm, which will have overall responsibility for these PPTA components. Individual consultants will be recruited to carry out social, poverty impact, and resettlement analyses; EIAs; and studies of efficiency improvement measures. As envisaged, 11.5 person-months of international consulting services and 40.0 person-months of national consulting services will be required. ADB will recruit the consultants in accordance with its *Guidelines on the Use of Consultants* (2007, as amended from time to time). The consulting firm will be selected according to quality- and cost-based selection procedures, and simplified technical proposals will be requested from short-listed firms. Biodata proposals will be requested from consultants recruited as individuals.

16. This PPTA will prepare the investment program's design and the first two loans under the program using the MFF. The remaining loans under the program will be prepared using a subsequent PPTA. The outline (TOR) for consultants are in Appendix 4. The PPTA is expected to start in February 2008 and will be completed by June 2008. The projects to be studied in this PPTA are all doubling projects except for one electrification project and are shown in the outline TOR. Seminars and workshops will be held to disseminate the output of the TA.

#### **IV. THE PRESIDENT'S DECISION**

17. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$1,000,000 on a grant basis to the Government of India for preparing the Railway Sector Investment Program, and hereby reports this action to the Board.

### DESIGN AND MONITORING FRAMEWORK

<b>Design Summary</b>	<b>Performance Targets/Indicators</b>	<b>Data Sources/Reporting Mechanisms</b>	<b>Assumptions and Risks</b>
<p><b>Impact</b></p> <p>Enhance IR's carrying capacity and organizational efficiency</p>	<p>Capacity in project corridors increases by a minimum of 20%</p>	<p>Railway transport statistics</p> <p>Surveys</p> <p>Progress reports</p>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• Project will be implemented on time</li> <li>• Measures to improve efficiency and commercial orientation will be implemented</li> </ul> <p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• Suboptimal implementation of efficiency improvement measures</li> <li>• Economic growth falters resulting in lower traffic volumes</li> </ul>
<p><b>Outcome</b></p> <p>Agreed design for the ensuing investment program using MFF modality</p>	<p>Submission of acceptable technical, economic, and financial analyses</p> <p>Preparation of EIA, environmental mitigation, social analysis, RP, and RF</p> <p>Preparation of sector analysis and efficiency improvement measures</p>	<p>Tripartite meetings</p> <p>Progress reports</p> <p>Final reports</p>	<p><b>Assumption</b></p> <ul style="list-style-type: none"> <li>• Consultants' performance is satisfactory</li> </ul>

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>1. Reports on technical, economic, and financial viability of projects</li> <li>2. Efficiency improvement scheme development</li> <li>3. Environmental assessment</li> <li>4. Formulation of RP and RF</li> <li>5. Social and poverty impact assessment</li> </ol>	<p>Consultant report covering all the items mentioned in output to be submitted within 4 months of commencement of services.</p>	<p>Tripartite meetings Progress reports Final reports</p>	<p><b>Assumption</b></p> <ul style="list-style-type: none"> <li>• Consultants' performance is satisfactory</li> </ul>
<p><b>Activities with Milestones</b></p> <ol style="list-style-type: none"> <li>1. Report on technical, economic, and financial viability (4 months from start date of each phase) <ol style="list-style-type: none"> <li>1.1 Cost estimates, procurement plan, and project management recommendations</li> <li>1.2 EIRR and FIRR estimates, distribution analysis</li> <li>1.3 Project management and financial management analyses of IA</li> </ol> </li> <li>2. Efficiency improvement scheme development (4 months from start date) <ol style="list-style-type: none"> <li>2.1 Design of efficiency improvement scheme</li> <li>2.2 Sector analysis and capacity development plan</li> </ol> </li> <li>3. EIA (4 months from start date) <ol style="list-style-type: none"> <li>3.1 Review of previous studies</li> <li>3.2 Identification and preparation of remaining requirements to comply with ADB policy</li> </ol> </li> <li>4. Resettlement, social and poverty impact assessment report (4 months from start date) <ol style="list-style-type: none"> <li>4.1 Identification and preparation of requirements to comply with ADB policy</li> </ol> </li> </ol>			<p><b>Inputs</b></p> <ul style="list-style-type: none"> <li>• ADB: Approximately 11.5 person-months of international and 40 person-months of national consulting services costing no more than \$1 million</li> <li>• Government: Services in-kind on, office accommodation, and local counterpart support</li> <li>• Making available all relevant reports as needed</li> </ul>

ADB = Asian Development Bank, EIA = environmental impact assessment, EIRR = economic internal rate of return, FIRR = financial internal rate of return, IA = implementing agency, IR = Indian Railways, MFF = multitranches financing facility, RF = resettlement framework, RP = resettlement plan

## INITIAL POVERTY AND SOCIAL ANALYSIS

### A. Linkages to the Country Poverty Analysis

<b>Is the sector identified as a national priority in country poverty analysis?</b>	<input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No	<b>Is the sector identified as a national priority in country poverty partnership agreement?</b>	<input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No
<p><b>Contribution of the sector or subsector to reduce poverty in India</b></p> <p>Recent estimates by the Planning Commission indicate that the poverty incidence has fallen from 36% in 1993–1994 to 27.5% in 2004–2005<sup>1</sup>, but the rate of poverty reduction has been “modest” and is “no longer acceptable given the minimalist level at which the poverty line is fixed”.<sup>2</sup> By the international poverty line yardstick of \$1 per day, the percentage of people below the poverty line is around 35%. These rates of poverty are of particular concern as the Indian economy has experienced relatively high rates of growth in recent years. While rural poverty rates, at 28%, are higher than urban poverty levels of about 26%, the absolute number of urban poor has increased by 4 million while the number of rural poor has decreased by more than 20 million over the decade 1993–1994 to 2004–2005. Economic growth is a powerful tool for poverty reduction. The growth process cannot be sustained or made more inclusive without the supporting transport infrastructure, and the rail network is an important part of India’s transport infrastructure.</p>			

### B. Poverty Analysis

**Targeting Classification:** General intervention

<p><b>What type of poverty analysis is needed?</b></p> <p>Poverty assessment will be conducted to (i) identify the poverty profile of the population likely to be impacted by the project, including road transport users; (ii) assess the relevant market structure and estimate the project’s likely distributive impacts; (iii) where appropriate, incorporate the needs of the poor, and minimize or compensate for adverse impacts on the poor; (iv) identify, where appropriate, more systematic integration of the project with other sectoral interventions, e.g., health, education, and rural development, to strengthen poverty reduction strategies; and (v) develop low-cost mechanisms for monitoring to contribute to the understanding of the links between this project and poverty reduction.</p>
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### C. Participation Process

<b>Is there a stakeholder analysis?</b>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<b>Is there a participation strategy?</b>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

### D. Gender Development

<p><b>Strategy to maximize impacts on women:</b></p> <p>A gender analysis will be prepared to address both the opportunities presented by the project in terms of employment opportunities for women and the potential negative impacts, including HIV/AIDS and trafficking. It will explore opportunities for income and employment in construction activities, with a view to setting targets for the number of women to be employed as well as ensuring equal pay for equal work. The project will ensure that women and men will have equal opportunities to participate in designing and implementing the project and receive similar wages for similar work.</p>		
<b>Has an output been prepared?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

<sup>1</sup> Based on consumption expenditure data collected during the National Sample Survey Organisation’s 61<sup>st</sup> round using a 30-day recall period for all items, e.g., the uniform recall period consumption distribution.

<sup>2</sup> Planning Commission, Government of India. 2006. *Towards Faster and More Inclusive Growth: An Approach Paper to the 11th Five Year Plan*. New Delhi.

**E. Social Safeguards and Other Social Risks**

Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
<b>Resettlement</b>	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	A full resettlement plan will be prepared.	<input checked="" type="checkbox"/> Full <input type="checkbox"/> Short <input type="checkbox"/> None
<b>Affordability</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The PPTA will analyze the affordability of rail fares for persons belonging to weaker sections of society.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Labor</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The PPTA will analyze if efficiency improvement measures have an impact on labor redundancies.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Indigenous Peoples</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The PPTA will identify if there are any people who are covered by ADB's <i>Policy on Involuntary Resettlement</i> , and if so, will prepare an IPDP as required.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Other Risks and/or Vulnerabilities</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The PPTA will consider social issues such as transmission of HIV/AIDS, trafficking, and rail safety.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

ADB = Asian Development Bank, HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, IPDP = indigenous peoples development plan, PPTA = project preparatory technical assistance.

**COST ESTIMATES AND FINANCING PLAN**  
(\$'000)

<b>Item</b>	<b>Total Cost</b>
<b>A. Asian Development Bank Financing<sup>a</sup></b>	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	345.0
ii. National Consultants	240.0
b. International and Local Travel	40.0
c. Reports and Communications	20.0
2. Equipment <sup>b</sup>	40.0
3. Training, Seminars, and Conferences	10.0
4. Surveys <sup>c</sup>	180.0
5. Miscellaneous Administration and Support Costs	20.0
6. Government Representative for Contract Negotiations	5.0
7. Contingencies	100.0
<b>Subtotal (A)</b>	<b>1,000.0</b>
<b>B. Government Financing</b>	
1. Office Accommodation	80.0
2. Remuneration of Counterpart Staff	90.0
3. Others	80.0
<b>Subtotal (B)</b>	<b>250.0</b>
<b>Total</b>	<b>1,250.0</b>

<sup>a</sup> Financed by the Japan Special Fund, funded by the Government of Japan.

<sup>b</sup> The equipment purchased will be computers, printers, and photocopying machines.

<sup>c</sup> There are seven corridors to be studied. Therefore, extensive traffic, freight demand, and environmental and social safeguards surveys are necessary.

Source: Asian Development Bank estimates.

## OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

### A. Introduction

1. The consultants for the Asian Development Bank (ADB)-financed Railway Sector Investment Program project preparatory technical assistance (PPTA) will formulate a consensual design of the investment program using the multitranche financing facility (MFF), and prepare projects for the first two loan tranches under this program for possible ADB financing. These projects involve doubling six existing railway lines and electrifying one other railway line. To complement these physical investments and a railway sector analysis, the PPTA will also recommend and formulate an implementation plan for efficiency improvements in railway organization, work processes, and procedures. The consultants will build on feasibility studies carried out by Indian Railways (IR). However, where necessary to meet ADB standards and requirements, the consultants will also conduct primary data collection and analysis.

### B. Scope of Work

2. The PPTA's duration is 4 months from the start of services. The study corridors and facilities to be analyzed for the investment program's first two loans are shown in TableA4.

**Table A4: Details of Projects to be Studied**

Name of Projects (double-tracking)	Length (km)	Location (State)
Daund-Gulbarga	225	Maharashtra, Karnataka, and Andhra Pradesh
Sambalpur-Titlagarh	182	Orissa
Raipur-Titlagarh	203	Orissa and Chhattisgarh
Arasikere-Birur	44	Karnataka
Dumitra- Champajhuram	18	Orissa
Hospet-Tenai Ghat	214	Karnataka
Pune-Guntakal Electrification	641	Maharashtra, Karnataka, and Andhra Pradesh
<b>Total</b>	<b>1,527</b>	

km = kilometer.

Source: Ministry of Railways

3. The professional positions, person-months, and activities for the required positions are as follows:

**1. International Rail Engineering Expert and Team Leader (4 person-months)**

4. The activities of this position include but are not limited to:

- (i) reviewing, updating, and, where necessary, supplementing new studies and analyses to identify key infrastructure bottlenecks along the study corridors and recommend engineering options;
- (ii) carrying out preliminary engineering designs of the physical infrastructure for the selected option and preparing corresponding cost estimates;
- (iii) carrying out the institutional assessment of Rail Vikas Nigam Ltd. (RVNL), the likely Implementing Agency (IA);
- (iv) preparing detailed terms of reference (TOR) for supervisory consultants who must be recruited for the implementation of the investment program's loans;
- (v) preparing contract packages to optimize the construction periods of the packages to expedite disbursement and minimize commitment charges the Executing Agency (EA) will pay on the outstanding balance of the loan; and
- (vi) preparing a procurement plan in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time).

**2. National Rail Engineering Experts 1 and 2 (4 person-months each)**

5. The activities of these two positions are to support and assist the international railway engineering expert/team leader with the tasks described in para. 4.

**3. International Transport Economist (4 person-months)**

6. The activities of this position include but are not limited to:

- (i) reviewing, updating, and, where necessary, supplementing new studies and analyses to estimate overall rail freight and passenger transport demand in the study corridors/facilities;
- (ii) carrying out economic and sensitivity analysis and traffic diversion and comparing the with- and without-project scenarios for the selected projects to obtain the economic internal rate of return (EIRR);
- (iii) preparing a socioeconomic and poverty profile of the area of influence, based on a review of existing studies and surveys of the representative road section;
- (iv) conducting a qualitative analysis of projects' impact on reduction of unemployment and poverty, and specifying gender impacts; and
- (v) in cooperation with the national environment expert, quantifying the environmental benefits of implementing the projects, rather than road use, to cater to demand.

**4. National Transport Economists 1 and 2 (4 person-months each)**

7. The activities of these two positions are to support and assist the international transport economist with the tasks described in in para. 6.

**5. National Financial Analyst (3 person-months)**

8. The activities of this position include but are not limited to:

- (i) carrying out financial analysis and sensitivity analysis for the selected projects, obtaining the financial internal rate of return (FIRR), and comparing the FIRR with the weighted average cost of capital; and
- (ii) carrying out financial management assessment of RVNL as the IA.

**6. National Environment Expert (4 person-months)**

9. The activities of this position include preparing (i) the environmental assessment and review framework for the investment program as a whole, (ii) the environmental sector assessment to identify each project's environmental impact, and (iii) an initial environmental examination (IEE) report, including but not limited to:

- (i) Undertaking a scoping exercise to identify affected areas and environmental data required for the IEE;
- (ii) Gathering secondary data on the project areas' physical environment, ecological resources, and the quality of life values as well as primary data for some ecologically sensitive issues, e.g., endangered species, national parks, and sanctuaries;
- (iii) Undertaking field surveys along the projects' areas and areas to be used as the main sources and temporary storage for the construction materials;
- (iv) Predicting and assessing the projects' potential environmental impacts;
- (v) Identifying mitigation measures for each predicted impact, its costs, and resources needed to implement the mitigation measures;
- (vi) Formulating management plans to operate each project and identifying the appropriate parties to monitor the mitigation measures' implementation and management plan;
- (vii) Undertaking adequate consultations with communities affected by the projects; and
- (viii) In cooperation with the international transport economist, quantifying the environmental benefits of implementing the projects, rather than road use, to cater to demand.

**7. International Social Impact and Resettlement Expert (3 person-months)**

10. The activities of this position include but are not limited to:

- (i) Reviewing the current policies, laws, orders, and other guidelines of ADB, the Government of India, and states relating to involuntary resettlement and indigenous peoples that may arise from the projects;
- (ii) Discussing with the EA its corporate mandate and how it can adequately address issues relating to resettlement and indigenous peoples that may arise from the projects and subprojects;
- (iii) If involuntary resettlement impacts occur, e.g., those concerning land acquisition, displacement, and livelihood and incomes, formulating appropriate involuntary resettlement planning instruments such as involuntary resettlement framework (RF) and resettlement plans (RPs);

- (iv) If the project is expected to affect indigenous peoples, formulating appropriate planning instruments such as indigenous peoples development framework (IPDF) and indigenous peoples development plans (IPDPs);
- (v) Once the RF is approved by EA and ADB and uploaded to ADB website, formulating an RP for each subproject identified if it has any resettlement impact, a decision based on initial screening and categorization;
- (vi) Training EA/IA staff to carry out RP, RF, and IPDP preparation; and
- (vii) Conducting workshops on RPs and RF.

**8. National Resettlement Experts 1, 2, and 3 (3 person-months each)**

11. The activities of these three positions are to support and assist the international social impact and resettlement expert with the tasks described in para.10.

**9. National Social Impact Expert (2 person-months)**

12. The activities of this position include, among others, carrying out social and poverty analysis to:

- (i) identify the poverty profile of the population likely to be impacted by the projects including users;
- (ii) assess the relevant market structure and estimate the likely distributive impacts of the projects;
- (iii) where appropriate, incorporate the needs of the poor and minimize the projects' adverse impacts;
- (iv) analyze the affordability of rail fares for poor and vulnerable groups;
- (v) carry out gender analysis of the projects; and
- (vi) carry out consultation and participation process for the projects.

**10. National Sector Analysis and Efficiency Improvement Analysis Expert (3 person-months)**

13. The activities of this position include but are not limited to the following:

- (i) Preparing the sector roadmap to show the sector's current status, objectives, the medium- and long-term envisioned status, strengths and weaknesses, bottlenecks to improvement, risks and areas in which improvement is required, and the strategy for sector improvement, and identification of sector objectives;
- (ii) Outlining the desired railway sector development plan to detail the policy or governing framework, strengths and weaknesses particularly in relation to the delivery of the investment program, prerequisite policy reforms, railway sector capacity development, investment program, and approach to financing.;
- (iii) Detailing the sequence of the investment program for the predicted MFF period and showing alignment to the railway sector's development over the medium- to long-term;
- (iv) Identifying efficiency improvement measures necessary to achieve the Eleventh Plan targets;
- (v) Identifying measures that can lead to greater commercialization of railway operations, including greater use of focused business organizations;
- (vi) Identifying how the accounting reforms' output can lead to better decision-making and greater commercial orientation; and

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(vii) Conducting workshops on recommended efficiency improvement measures.

### **C. Reporting Requirements**

14. The consultants will submit the following reports:

- (i) an inception report, within 1 month after the start of services;
- (ii) a draft final report, within 4 months after the start of services; and
- (iii) a final report, 2 weeks after receipt of all comments from ADB and the EA.

15. ADB requires 5 copies of each report, and the EA requires 20 copies of each report.

16. The consultants will also organize two workshops. The first workshop will discuss the RP and RF, and the second workshop will discuss efficiency improvement measures.