

ASIAN DEVELOPMENT BANK

TAR:IND 34420

TECHNICAL ASSISTANCE

TO

INDIA

FOR PREPARING THE

NATIONAL HIGHWAY CORRIDOR (SECTOR) PROJECT

December 2002

CURRENCY EQUIVALENTS

(as of 26 November 2002)

Currency Unit	–	rupee/s (Re/Rs)
Re1.00	=	\$0.0208
\$1.00	=	Rs48.13

In this report, an exchange rate of \$1.00 = Rs49.00 was used for calculation purposes. This was the rate prevailing during fact-finding.

ABBREVIATIONS

ADB	–	Asian Development Bank
AM	–	Aide Memoire
BOT	–	build-operate-transfer
EIRR	–	economic internal rate of return
EMMP	–	environmental management and monitoring plan
E-W	–	East-West
MORTH	–	Ministry of Road Transport and Highways
MP	–	Madhya Pradesh
NGO	–	nongovernment organization
NHAI	–	National Highways Authority of India
N-S	–	North-South
PSI	–	private sector investment
RP	–	resettlement plan
SCF	–	standard conversion factor
SEIA	–	social environmental impact assessment
SIEE	–	summary initial environmental examination
ST	–	scheduled tribe
TA	–	technical assistance
UP	–	Uttar Pradesh

NOTE

- (i) The fiscal year of the Government ends on 31 March.
- (ii) In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. During the 2001 Country Programming Mission, the Government of India requested the Asian Development Bank (ADB) to extend technical assistance (TA) for the preparation of the National Highway Corridor (Sector) Project¹ (“the 2003 Project”). In response, an ADB TA Fact-Finding Mission visited India from 4 to 11 September 2002 and reached an understanding with the Government on the concept of the 2003 Project and the objectives, scope, and implementation arrangements of the TA.²

II. ISSUES

2. **Sector Background.** India has an extensive and diverse transport system, comprising 3,299,000 kilometers (km) of roads, 62,800 km of railways, and about 14,500 km of navigable inland waterways. The modal mix between road and rail transport³ has been continuously shifting away from railways to roads due to the former’s lack of user-oriented service. Consequently, road transport is now the dominant mode of transportation, accounting for 68% of freight (in terms of ton-km) and 73% of passengers (in terms of passenger-km). This modal shift is likely to continue in the future, as transport demands increasingly shift from bulk to smaller lot size cargoes with more frequent delivery requirements. This calls for further improvement and expansion of road networks.

3. India’s road network consists of three categories: (i) national highways (58,000 km), (ii) state highways/roads (119,000 km), and (iii) rural roads (3,122,000 km). While national highways account for only 2% of the total road network in terms of length, they carry about 40% of the total traffic. National highways are managed by two agencies: the National Highways Authority of India (NHAI) and the Ministry of Road Transport and Highways (MORTH). NHAI was established in 1988 and operationalized in 1995 as an operating arm of MORTH. NHAI is responsible for one fourth of the national highways, which carry around 25% of the nation’s total traffic, while MORTH is responsible for the remaining three fourths of national highways, which carry 15% of the total traffic.

4. India’s economy has long suffered a chronic capacity shortage of its highway systems. Thirty-nine percent of the national highway systems is still of single-lane standard; the majority (59%) is two-lane, while four-lane or higher standard highways account for only 2%. Faced with this inadequate capacity, the Government has decided to launch a radical program of upgrading key national highway corridors, consisting of (i) the golden quadrilateral – 6,000 km, (ii) the north-south corridor (N-S corridor) – 4,000 km, and (iii) the east-west Corridor (E-W corridor) – 3,300 km. The program, called the National Highway Development Program, was announced in 1998 and is to be completed by the end of 2007. Its total cost is estimated at around \$13 billion.

5. Effective implementation of a program of magnitude requires the establishment of an enabling policy environment which, the Government has taken a series of actions to create, principally (i) simplifying the century-old land acquisition procedure by amending the National Highway Act (done in 1997); (ii) issuing and implementing a new policy guideline⁴ with the aim of facilitating private sector participation in highway development (1997); (iii) adopting a policy

¹ The project, previously called “National Highway Corridor (II) Project,” first appeared in *ADB Business Opportunities* in September 2002.

² The TA first appeared in *ADB Business Opportunities*, in September 2002.

³ Inland waterways play a minor role in India’s transport system; they carry only 0.15% of the total domestic cargo in terms of ton-km.

⁴ “Guideline for Private Sector Participation in Road Infrastructure,” issued by MORTH in 1997

such once a road is upgraded to a four-lane highway, it can be made tollable (1997); (iv) revamping the central road fund by introducing an additional excise duty levied on petrol and diesel (called a “cess”) (1998 and 1999); and (v) delegating broader decision-making authority to NHAI so that NHAI can make decisions on individual investments and procurement (2000).

6. While these policy actions have brought about significant changes in the ways to manage the national highway sector, a number of issues remain. To address them in an effective and systematic manner, ADB has adopted a programmatic approach, an essential element of which is to set out the medium- to long-term goals for ADB’s intervention in the national highway subsector and pursue the realization of these goals in a progressive and evolutionary manner through its multiyear lending operations rather than on a project-by-project basis. Medium- to long-term goals include (i) strengthening institutional capacity for project implementation and contract management; (ii) strengthening financing and financial management capability so as to effectively mobilize necessary funds from capital markets; (iii) enhancing highway operations and management; (iv) advancing the public private partnership concept; and (v) transforming NHAI into a more financially and managerially autonomous body, including a corporatized form of the organization.

7. The sequential nature of the programmatic approach implies that project preparation and processing under the program are to be standardized and simplified over the years. As NHAI builds its project development and implementation capacity, ADB’s evaluation of project viability should be limited to those areas of relative weakness of NHAI. Direct appraisal by ADB staff should be, wherever possible, replaced by appraisal by NHAI staff following guidelines set by ADB. This shift will also meet the Government request for incorporating flexibility in adding or extending highway sections to be financed by ADB. However, given the magnitude of the potential impact of large-scale infrastructure projects on the environment and on social development, the transition to a different modality of project evaluation should be gradual.

8. **Concept of the 2003 Project.** During the TA Fact-Finding Mission, it was agreed to employ the sector loan scheme in the envisaged 2003 project. This approach is justifiable because NHAI has a clearly defined medium-term highway development program; and it also has relatively strong institutional capability to develop projects, particularly with regard to technical and engineering capacity. While its environmental and social development capacity must be further strengthened, the envisaged TA/loan programs⁵ should strengthen NHAI’s capacity for the latter areas. Another element supportive of this approach is a series of government policy actions taken for the last several years to create an enabling policy environment conducive to efficient highway development. Thus the criteria spelled out in ADB’s *Guidelines on Operational Procedures*, Section 5, on Sector Lending, have been satisfactorily met.

9. The Mission and NHAI agreed that the 2003 project will cover priority sections of the E-W corridor located in three states — Rajasthan, Madhya Pradesh, and Uttar Pradesh — and preliminarily identified the sections of the 672 km between Chittorgarh and Bhognipur to be assisted under the proposed 2003 project. It was further agreed that 10-20% of the project roads will be developed under the private sector investment (PSI) scheme such as build-operate-transfer (BOT) or annuity-based concessions. Two thirds of the remaining sections will be developed as core subprojects, to be appraised by ADB, while the remaining third will be

⁵ An environmental management component included in the Western Transport Corridor Project (approved by the Board in September 2001 and which become effective in February 2002) and a capacity-building TA component for emerging social issues included in the East-West Corridor Project (approved by the Board in November 2002).

noncore subprojects, to be subsequently appraised by NHAI. The 2003 project will finance both core and noncore subprojects, while the PSI elements are less likely to be financed under the 2003 project.⁶ The latter would be developed either through ADB's private sector operational arm or under direct PSI financing. Recommendations on what sections of the project roads will be developed under what schemes will be formulated by the TA consultant already engaged under ADB's ongoing PPTA for the National Highway Corridor – Public Private Partnership Project.

10. Under the above arrangement, major project preparation activities will be carried out by NHAI using its own resources, covering all aspects of project preparation — technical, economic, financial, institutional, environmental, and social. The TA will essentially supplement NHAI's efforts and assure that all ADB's requirements are satisfactorily met.

III. THE TECHNICAL ASSISTANCE

A. Purpose and Output

11. The purpose of the TA is to facilitate NHAI's preparation of the proposed 2003 project focusing on the areas of NHAI's relative weakness. The TA is designed to facilitate transition from the conventional project loan scheme to the sector loan approach, with increased responsibility being shifted to NHAI. Additional assistance will be provided to facilitate the participation of private sector investors in the development of the project roads.

B. Methodology and Key Activities

12. The Project will be divided in three types of subprojects in which different ways of project processing will be applied: (i) core subprojects, to be prepared by NHAI and appraised by ADB (Scheme A); (ii) noncore subprojects, to be prepared and appraised by NHAI and approved by ADB (Scheme B); and (iii) PSI subprojects, to be developed primarily by the private sector (Scheme C). The modality of assistance will differ from scheme to scheme, as follows:

(i) **Scheme A.** Assistance to core subprojects

- (a) Provision of advice to ensure that all ADB requirements are satisfactorily met in the envisaged subprojects with particular emphasis on (i) financial and economic assessment; (ii) poverty and social assessment, including poverty impact, indigenous peoples, communicable diseases, women trafficking, and resettlement planning; (iii) environmental management; and (iv) engineering support (though limited).
- (b) Preparation of specific documents including (i) a summary economic and financial assessment report; (ii) a poverty impact assessment report; (iii) a social assessment report; (iv) if necessary, an indigenous peoples development plan; (v) resettlement plans; and (vi) a summary initial environmental examination (SIEE) or summary environmental impact assessment (SEIA) report, including environmental management and monitoring plan (EMMP) elements.

⁶ However, the possibility has been kept open at this stage. If the detailed financial analysis demonstrates the need of substantial grant to from NHAI, the project may consider extending assistance to the PSI component to make the BOT component attractive for private sector investors.

(ii) **Scheme B.** Assistance to noncore subprojects

- (a) Development of a set of manuals to facilitate NHAI's development of subprojects, covering all aspects of the project including (i) financial and economic assessment; (ii) poverty and social assessment, including indigenous people and women trafficking; (iii) resettlement; and (iv) environmental management. These manuals are essentially compilations of ADB's relevant guidelines and checklists for each area of project evaluation. They will also include necessary instructions to NHAI on procedural requirements and required activities for each stage of the project preparation and processing.
- (b) Development of a resettlement framework to be applied for noncore subprojects. The framework will set out the policies and procedures to be followed in preparing the resettlement plans of subsequent subprojects. In addition, the consultant will include in the manual the arrangements by which NHAI will screen, develop, and submit to ADB subproject resettlement plans at appraisal and/or prior to the commencement of civil works, in line with ADB involuntary resettlement policy.
- (c) Development of a summary report format to be used for NHAI's submission of noncore subprojects to ADB for its approval.
- (d) Identification of areas requiring additional capacity building, if any.
- (e) Organization of a workshop for training staff and NHAI's consultants to familiarize them with the manual and summary report format.

(iii) **Scheme C.** Assistance to PSI subprojects

- (a) Preparation of specific documents including (i) a summary economic and financial assessment report; (ii) a poverty impact assessment report; (iii) a social assessment report; (iv) if necessary, an indigenous peoples development plan; (v) resettlement plans; and (vi) SIEE or SEIA report, including EMMP.
- (b) Projection of future traffic for the PSI subprojects, study on the impact of the introduction of tolls⁷ on traffic and development of subproject-specific tolling strategy, design of investment packages for subprojects, and developing a framework of the concession arrangement covering both construction and operation and management.
- (c) Development of tender documents including concession agreements and selection criteria of bidders, and provision of assistance to the process of evaluating proposals and selecting a successful bidder.

C. Cost and Financing

13. The total cost of the TA is estimated at \$650,000 equivalent, of which \$376,200 will be foreign exchange costs and \$273,800 equivalent will be local currency costs. ADB will finance \$500,000 equivalent, which include the entire foreign exchange cost, and \$123,800 equivalent in local currency. The remaining \$150,000 equivalent will be contributed by the Government and will include office accommodation, counterpart staff remuneration, transportation, and surveys.

⁷ The level of tolls is determined uniformly by the Government for the entire NHDP. Thus the competition by potential BOT contractors will be made by the minimum amount of the grant (including negative grant) to be obtained by NHAI.

The TA will be financed on a grant basis by ADB's TA funding program. The Government has been informed that financing the TA does not commit ADB to financing a subsequent loan project. The detailed cost estimates and financing plan are shown in Appendix 2.

D. Implementation Arrangements

14. NHA will be the Executing Agency. It will form a project preparation and processing unit headed by the chief general manager in charge of the E-W and N-S corridors, and will consist of officials in charge of environment, social development, technical/procurement, and private sector development. As stated earlier, NHA will carry out feasibility studies, preliminary design, detailed design, and development of bidding documents through its own consulting firms. The primary role of the TA consultants is to ensure that the project prepared by NHA is consistent with ADB's requirements, and to provide necessary guidance to NHA to ensure that they can appraise noncore subprojects in a satisfactory manner.

15. An international consulting firm will be engaged to cover economic and financial assessment, poverty impact analysis, environmental assessment, and provision of engineering support, using ADB's quality and cost-based selection procedures and in accordance with its *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB on the selection and engagement of domestic consultants (a biodata technical proposal method will be used). The task requires 8 person-months of international and 6 person-months of domestic consultant inputs. Two individual consultants, one international and one domestic, will be engaged for conducting the social assessment and resettlement planning, in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB on the selection and engagement of domestic consultants. The latter task requires 4 person-months of international and 3 person-months of domestic consultant inputs.

16. The TA will commence in February 2003 and be closed in September 2003. Terms of reference for the consulting services are outlined in Appendix 3.

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 \$500,000 to the Government of India for preparing the National Highway Corridor (Sector) Project, and hereby reports this action to the Board. The technical assistance, initially financed as a grant, will be subject to the reimbursement arrangements set forth in *Technical Assistance Operations*⁸ and *Streamlining of Technical Assistance Operations*.⁹ If the technical assistance results in an ADB loan, ADB may charge against the loan, and recover from it, the portion of the initial grant that exceeds \$250,000 equivalent.

⁸ ADB. 1977. *Technical Assistance Operations*. R51-77, 20 May. Manila.

⁹ ADB. 1988. *Streamlining of Technical Assistance Operations*. R44-88, 21 March. Manila.

POVERTY REDUCTION AND SOCIAL STRATEGY

A. Linkages to the Country Poverty Analysis

Sector identified as a National Priority in Country Poverty Analysis? No	Sector identified as a National Priority in Country Poverty Partnership Agreement? No
<p>Contribution of the highway/road sector to reduce poverty in India:</p> <p>Although the highway/road sector is not a core sector for poverty alleviation in India, road infrastructure has been recognized as an important instrument for social and economic change. The 9th Five-Year Plan of India has allocated a large amount of money for highway/road infrastructure. The Government's road development policy is comprehensive towards the establishment of total connectivity within the nation including national highways, state roads, and rural roads. ADB intends to assist the Government's efforts to improve the highway/road system in its entirety. It is intended to support not only the national highway system, but also the state and rural road segments.</p> <p>The proposed project, which will pass through agricultural areas and commercial and industrial centers, will have social and economic impact on the communities that inhabit the project corridor and beyond. The highway improvement is expected to contribute to the development of the project region through (i) improved connectivity to production and commercial centers; (ii) higher productivity through greater mobility; (iii) increased opportunities for nonfarming employment, particularly beneficial to unemployed youth; (iv) lower prices of selected consumer commodities and agricultural inputs; and (v) improved marketability of agricultural surplus at competitive prices throughout the year. It will also enhance social benefits such as better access to educational and health facilities. Short-term benefits will also accrue to unskilled labor including farm laborers and other income earners for new employment opportunities to be generated by highway construction and maintenance, tree planting, and other related activities.</p>	

B. Poverty Analysis

<p>Proposed Classification: Others. Thematic (economic growth and private sector development)</p> <p>Poverty Analysis: The project corridor of about 670 kilometers in length passes through Rajasthan, Madhya Pradesh (MP), and Uttar Pradesh (UP). In general, the project regions are not densely populated and are less urbanized due to hilly and forested terrain except for 18 major urban settlements. In addition, about 120 small towns and rural settlements exist along the project corridor. The Rajasthan section contains the bulk of the settlements.</p> <p>Agriculture is the main occupation in the districts along the project corridor. The hilly, forested, and undulating terrain with limited irrigation restricts agricultural productivity and employment generation. Low yield dryland crops like millet and maize predominate, while more productive food and cash crops of wheat, sorghum, and groundnut are restricted to small western and eastern sections of the corridor. Industrial and mining activities are limited in the region except close to Chittorgarh and Udaipur.</p>
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Unfavorable physical conditions (terrain, rainfall, and soils), together with limited access to social infrastructure (less than 10% of the population in the Rajasthan and MP sections have access to safe drinking water), have produced a high incidence of poverty and unemployment. Most indicators of poverty and social deprivation like population below the poverty line, work participation rate, gender ratio, life expectancy, and comprehensive human development index are unfavorable (except in selected sections in the western part of the corridor) based on secondary data sources (state statistical abstracts, and national human development reports). The workforce participation rate is relatively low, ranging from 34% in Jalaun to 49% in Jhansi. The employment rate is high only in the Chittorhgarh and Udaipar sections of Rajasthan due to expanding mining and industrial activities. Except one district of Jhansi in UP, all other districts exhibit high rural poverty ratios (26-34%) that exceed the national average of 26%. Poverty ratios are even higher in urban areas. UP, MP, Rajasthan, and Gujarat rank 31,30,27, and 17, respectively.

Better connectivity to the urban settlements located along the project corridors and their vicinities, together with improved marketability of agricultural products, will contribute to the regional economy, which will contribute to poverty reduction. Meanwhile, the marginal landowners, landless laborers, and small business enterprises may become more vulnerable due to loss of agricultural and other assets and livelihood bases because of the need for land for alignments in the hilly areas and bypasses around urban settlements. Special considerations and safeguards have to be incorporated in the project design and the resettlement plan (RP) to obviate such possible losses and vulnerability components.

C. Participation Process

Stakeholder Analysis Prepared: No
Participation strategy required: No

Participation strategy:

The National Highways Authority of India conducted broad based consultations with key stakeholders in the past and is intending to expand this process under the Asian Development Bank's assistance (a capacity-building component for emerging social issues is included in the proposed East-West Corridor Project). See Table A1 for participatory strategy summary.

D. Potential Issues

Subject	Significance	Strategy to Address Issues	Plan Required
Resettlement	Significant (due to inclusion of more than 16 major urban settlements and hilly terrain)	(i) Inventory of property and other community losses (ii) Estimate of the affected persons. (iii) Identification of vulnerable groups (squatters, indigenous people, backward castes, and other marginal groups) (iv) Institutional capacity building	Full RP to include resettlement and income restoration measures

		<ul style="list-style-type: none"> (v) Identification of nongovernment organizations (NGOs) for training, awareness generation, and to aid early dispensation of entitlements. (vi) Involvement of stakeholders in decision making at all stages of project design, implementation, and monitoring 	
Gender	Not significant	<ul style="list-style-type: none"> (i) Gender analysis (literacy in particular) (ii) through gender-disaggregated secondary data (iii) Involvement of women in various related committees (iv) Involvement in decision-making process, including income-generating programs, HIV/AIDS,¹ construction campsites, and trafficking of women issue (v) Involvement in design, implementation, and monitoring stages 	No
Labor	Not significant	<ul style="list-style-type: none"> (i) Assessment of workers losing jobs/livelihood (ii) Wage level and earnings (iii) Child labor (iv) Informal sector assessment 	N/A
Indigenous Peoples	To be determined later	<ul style="list-style-type: none"> (i) Corridor districts in Gujarat and Rajasthan include high scheduled tribe (ST) population (12-26%), which is significantly higher than the national average of 7.5%. The project has to study if the population has been mainstreamed or not. Based on the findings of the study, need to decide whether the preparation of an Indigenous People Development plan (IPDP) is needed. (ii) Still, a general analysis of ST families need to be done from the census and baseline surveys to ascertain their vulnerability (risks) along with other vulnerable groups. 	Not certain
Other risks/ Vulnerabilities			
HIV/AIDS	Significant at few locations (Shivpuri)	Identification of HIV/AIDS related NGOs for awareness campaign	No
Animal fairs on the road side	Significant at selected locations	Provision for possible sites in RP to address the issue if found significant	No

¹ Human immunodeficiency virus/acquired immunodeficiency syndrome.

Table A1: Participation Strategy Summary

Stakeholder Group	Objective of their Intervention	Type of Participation	Participation Methods	
			Method	Responsible
Central Government ministries	<ul style="list-style-type: none"> ▪ national highway project (funding and implementation role) 	<ul style="list-style-type: none"> ▪ shared decision making ▪ shared responsibility or control 	<ul style="list-style-type: none"> ▪ effective participatory analysis ▪ Project strategy 	NHAI
Representative assemblies (elected govt. bodies) and panchayat/ district level committees	<ul style="list-style-type: none"> ▪ Involvement in various project implementation committees ▪ project awareness 	<ul style="list-style-type: none"> ▪ information sharing on project objectives ▪ shared decision making ▪ shared responsibility or control 	<ul style="list-style-type: none"> ▪ participatory planning ▪ situation analysis 	<ul style="list-style-type: none"> ▪ project design/ implementing agency ▪ project implementation committees
Poor and vulnerable groups	<ul style="list-style-type: none"> ▪ involvement in various project implementation committees ▪ project awareness ▪ primary stakeholders 	<ul style="list-style-type: none"> ▪ consultations ▪ shared decision making, ▪ shared responsibility or control ▪ project implementation and monitoring 	<ul style="list-style-type: none"> ▪ participatory rapid assessment 	<ul style="list-style-type: none"> ▪ project design/ implementing agency ▪ implementing NGOs ▪ resettlement expert
Organized civil society	<ul style="list-style-type: none"> ▪ involvement in various project implementation and monitoring committees ▪ project awareness ▪ skill transference ▪ capacity building ▪ assistance to vulnerable groups 	<ul style="list-style-type: none"> ▪ consultations ▪ shared decision making ▪ shared responsibility or control ▪ project implementation and monitoring 	<ul style="list-style-type: none"> ▪ qualitative or quantitative surveys ▪ participatory planning 	<ul style="list-style-type: none"> ▪ project design/ implementing agency ▪ implementing NGOs
Private sector	<ul style="list-style-type: none"> ▪ partnership in construction ▪ toll collection ▪ maintenance ▪ facilities development 	<ul style="list-style-type: none"> ▪ shared responsibility or control 	<ul style="list-style-type: none"> ▪ participatory planning 	<ul style="list-style-type: none"> ▪ NHAI

NGO = nongovernment organization, NHAI = National Highways Authority of India.

COST ESTIMATES AND FINANCING PLAN

Item	(\$)								
	Economic/financial, environmental, and engineering			Social assessment and resettlement			Total		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing a									
1. Consultants									
a. Remuneration and Per Diem									
i. International Consultants	183,000	-	183,000	90,000	-	90,000	273,000	-	273,000
ii. Domestic Consultants		30,000	30,000	-	15,000	15,000	-	45,000	45,000
b. International and Local Travel	30,000	2,500	32,500	20,000	1,500	21,500	50,000	4,000	54,000
c. Reports and Communications	-	2,000	2,000	-	3,000	3,000	-	5,000	5,000
2. Training, Seminars, and Conferences	-	-	-	-	-	-	-	-	-
3. Surveys	-	22,000	22,000	-	50,000	50,000	-	72,000	72,000
4. Miscellaneous Administration and Support Costs	-	900	900	-	600	600	-	1,500	1,500
5. Participation in Contract Negotiations (Government)	2,401	-	2,401	1,599	-	1,599	4,000	-	4,000
6. Contingencies	19,627	7,683	27,310	13,073	5,117	18,190	32,700	12,800	45,500
Subtotal (A)	235,028	65,083	300,111	124,672	75,217	199,889	359,700	140,300	500,000
B. Government Financing									
1. Office Accommodation and Transport	-	9,003	9,003	-	5,997	5,997	-	15,000	15,000
2. Remuneration and Per Diem of Counterpart Staff	-	42,016	42,016	-	27,984	27,984	-	70,000	70,000
3. Studies, Surveys, and Reports	-	10,804	10,804	-	7,196	7,196	-	18,000	18,000
4. Communications	-	13,205	13,205	-	8,795	8,795	-	22,000	22,000
5. Administrative Support	-	15,006	15,006	-	9,994	9,994	-	25,000	25,000
Subtotal (B)	-	90,033	90,033	-	59,967	59,967	-	150,000	150,000
Total	235,028	155,117	390,145	124,672	135,183	259,855	359,700	290,300	650,000

a Financed by ADB's TA funding program.

Source: ADB staff estimates.

TERMS OF REFERENCE FOR CONSULTING SERVICES

1. The project will be divided in three types of subprojects in which different ways of project processing will be applied: (i) core subprojects, to be prepared by the National Highways Authority of India (NHAI) and appraised by the Asian Development Bank (ADB) (Scheme A); (ii) noncore subprojects, to be prepared and appraised by NHAI and approved by ADB (Scheme B); and (iii) private sector investment (PSI) subprojects, to be developed primarily by the private sector (Scheme C). The modality of assistance will differ from scheme to scheme. Matching each subproject with the appropriate scheme will be carried out by the project preparatory technical assistance consultants engaged for the 2002 NHAI Project prior to the commencement of this technical assistance (TA).

A. Economic Analysis, Financial Analysis, Poverty Assessment, Environmental Assessment, and Engineering Support

2. A consulting firm will be engaged for carrying out economic and financial analyses, poverty assessment, and providing advisory support for the engineering aspect of the civil works. The consultant team will consist of (i) an international transport economist with experience in economic and financial analysis for highway projects, familiarity with poverty analysis and knowledge of the procedural requirements of ADB and/or the World Bank; (ii) a domestic poverty specialist with experience in the poverty assessment of highway projects; (iii) an international financial analyst who is familiar with project finance schemes such as build-operate-transfer arrangements and annuity-based concessions for toll road operations; (iv) an international environmental specialist; and (v) a domestic highway engineer with adequate experiences in highway design and proof checking. The international transport economist will serve as team leader and will organize and manage the entire work program and ensure the timely delivery of quality products to ADB. The task will require 5 person-months of input by the international transport economist, 2 person-months by the international financial analyst, 1 person-month by the international environmental specialist 3 person-months by the domestic poverty specialist, and 3 person-months by the domestic highway engineer.

1. International Transport Economist

3. For Schemes A and C, the TA consultant will carry out economic analysis in accordance with ADB's *Guidelines for the Economic Analysis of Projects*. NHAI's consultants are likely to use HDM IV. The task of the TA consultant is therefore to ensure that the economic analysis to be carried out by the NHAI consultants meets ADB's requirements. This will, in turn, require the examination of methodologies, validation of the data collected by the NHAI consultants, and additional runs of the HDM model so as to conduct supplementary analyses for the economic analysis. In reviewing and supplementing the analysis by the NHAI consultants, the TA consultant should pay special attention to the following elements:

- (i) **Traffic projection.** The traffic forecasts should be made for representative types of the vehicles, based on the analysis of the historical and current traffic data. If necessary, the TA consultant should carry out traffic counts at key locations to verify the accuracy of the current traffic level data. Examination should be made of how seasonal fluctuations of traffic are estimated. If necessary, validation should be made by monthly sales data of fuel. Projections should be also made in consideration of relevant economic variables including the net domestic products of the individual states. The TA consultant should also examine the appropriateness of the demand elasticity for the economic growth employed by the NHAI consultants, which tends to be high in India. Projection should be made

for normal and diverted traffic. If appropriate and necessary, the projection of the generated traffic should also be made.

- (ii) **Economic benefits.** The savings of vehicle operating costs should be calculated in an appropriate manner under the “with” and “without” project case scenarios. Economic benefits accruing from time savings should also be included. A trial should be made to estimate the benefits accruing from the possible reduction in traffic accidents.
- (iii) **Economic costs.** The major cost element is that for upgrading the project highways. It should include civil works costs, consultant fees for detailed engineering design and construction supervision, and physical contingencies, but exclude taxes, duties, price contingencies, price escalation, and interest during construction. Costs for acquiring rights of way and clearing utilities/trees should be included. Incremental operation and maintenance costs should be calculated as the difference between the “with” and “without” project cases. They could be negative or positive. These cost calculations will be done by converting financial costs into economic costs with the use of appropriate conversion factors. The NHA consultants often use a standard conversion factor (SCF) of 0.8 or 0.85. In that case, the TA consultant has to ascertain how this SCF was calculated (e.g., whether it is for just excluding the taxes and duties or for correcting other price distortions).
- (iv) **Estimation of economic return.** Annual streams are to be estimated for economic costs and benefits over 25 years on a constant price basis. If the NHA consultants use a different period, it could be adopted. However, the same project period must be used for the economic and financial analyses, which are often different in India. An appropriate salvage value is to be assigned for the subprojects. Based on this, annual cost and benefit streams, the economic internal rate of return (EIRR) and net present value should be calculated for each subproject.
- (v) **Sensitivity analysis.** The sensitivity of the EIRR should be analyzed with respect to key parameters that underlie its estimate including cost increase, benefit reduction, and delay in project implementation. The EIRR should also be calculated for the combination of these risks.
- (vi) **Risk analysis.** The TA consultant should also carry out quantitative risk analysis in accordance with ADB’s *Handbook for Integrating Risk Analysis* in the *Economic Analysis of Projects* so as to calculate a composite indicator for the overall project risk.
- (vii) **Preparation of a summary note.** Based on the above review and examination of the NHA consultants analysis, the TA consultant should prepare a summary note of several pages for the economic analysis, which will include (i) a description of traffic projections; (ii) methodologies for economic assessment including the conversion factors used (if individual conversion factors are used for unskilled labor, energy, or other cost factors, those should be explained in the note), (iii) calculation of the economic benefits, (iv) calculation of the economic cost, (v) estimation of economic returns, (vi) sensitivity analysis, and (vii) risk analysis.

4. The TA consultant will conduct a distribution analysis in accordance with ADB's *Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects*. The consultant will guide the domestic poverty specialist to obtain data necessary for conducting a quantitative analysis for the poverty impact of the project. The international consultant will also direct the domestic poverty specialist and ensure the quality of the poverty impact assessment and the report summarizing the findings and analyses.
5. For Schemes A and C, the TA consultant will carry out financial analysis in accordance with ADB's forthcoming *Guidelines on the Financial Management of Investment Projects*.
6. For Scheme B, the consultant will develop a set of manuals to facilitate NHAI's appraisal of noncore subprojects, covering all aspects of the project including (i) financial and economic assessment, (ii) poverty impact assessment, (iii) social assessment including indigenous people, (iv) resettlement, and (v) environmental management. These manuals are essentially compilations of relevant parts of ADB's guidelines and checklists applicable for national highway upgrading. They should also list, among others, all elements to be appraised by NHAI, and procedural requirements and activities for each stage of project preparation and processing, and they should note the main areas requiring special attention from NHAI in its appraisal of subprojects.
7. For Scheme B, the consultant will develop a summary report format to be used for NHAI's submission of subprojects to ADB for approval.
8. For Scheme B, the consultant will organize a workshop for training staff and consultants of NHAI to get them familiar with the manual and the summary report format.

2. Domestic Poverty Specialist

9. For Schemes A and C, the consultant will conduct community assessments on the poverty reduction impacts of the subprojects.
10. For Schemes A and C, the consultant will prepare a poverty assessment report in accordance with ADB's *Handbook for Poverty Reduction and Social Assessment*. For calculation of the quantitative impact of the Project on poverty reduction, the consultant will use the input of the international transport economist on the distribution analysis.
11. For Scheme B, the consultant will provide inputs for the poverty assessment manual to be prepared by the international transport economist. The consultant should also provide information on relevant parts of ADB's guidelines and checklists related to the poverty assessment, all elements to be appraised by NHAI for individual subprojects, and procedural requirements and activities for each stage of project preparation and processing, and should note on the main areas requiring special attention from NHAI in its appraisal of subprojects.
12. The domestic poverty specialist will work under the guidance of the international transport economist.

3. International Financial Analyst

13. For Scheme C, the consultant will (i) conduct a more detailed demand projection for the section identified for PSI; the demand projection should take into account the impact of tolls¹

¹ The level of tolls is uniformly set by the government for the entire network of NHDP. It is adjusted annually based on the wholesale price index.

and also possible diversion of traffic or generation of traffic in the specific situation of the road network in the project influence area; (ii) conduct a study to assess the possible impacts of the introduction of tolls on traffic, in terms of both its volume and the pattern of traffic flow; (iii) develop a project-specific tolling strategy; (iv) design a project specific investment package, and analyze the need for a grant or other “sweetener” to be extended by NHAI to make investment more attractive to private sector investors; and (v) develop, based on the model concession agreement developed by NHAI and in consideration of tender documents previously prepared for other private sector investment projects, tender documents including concession agreements and selection criteria for evaluating bidding proposals by private sector contractors.

4. International Environmental Specialist

14. For Schemes A and C, the consultant will review, verify, and, if necessary, revise the environmental assessment to be carried out by NHAI consultants to ensure that all key elements are adequately covered in accordance with ADB’s *Environmental Assessment Requirements* (1998) and *Environmental Guidelines for Selected Infrastructure Projects* (1993).

15. For Schemes A and C, the consultant will prepare a summary report for an initial environmental examination or, if required, for an environmental impact assessment.

16. For Scheme B, the consultant will prepare a manual on environmental assessment. The manual will essentially be a compilation of the relevant parts of ADB’s guidelines and checklists applicable for national highway upgrading.

17. It should also include, among others, a concise description of all elements to be appraised for individual subprojects, and the procedural requirements for each stage of project preparation and processing, and it should note main areas requiring the special attention of NHAI in its appraisal of subprojects.

5. Domestic Highway Engineer

18. For Scheme A, the consultant will review and comment on the results of feasibility studies and preliminary designs to be prepared by the NHAI consultants with regard to engineering aspects, ensuring that (i) road safety measures are adequately incorporated in the highway design; and (ii) the results of resettlement planning, social assessment, and the environmental assessment are properly reflected in the design. The consultant will provide necessary advice to NHAI on engineering aspects. The consultant will also conduct a proof check for the detailed design prepared by the NHAI consultants.

B. Social Assessment and Resettlement

19. Two individual consultants, an international resettlement specialist and a domestic social assessment specialist, will be engaged to carry out the tasks listed below. The tasks will require 4 person-months of input by one international resettlement consultant and 3 person-months from one domestic social assessment consultant.

1. International Resettlement Specialist

20. For Schemes A and C, the consultant will provide necessary guidance to the NHAI consultants in their preparation of the resettlement plans (RPs); and review, verify, and edit the RPs to be prepared by the NHAI consultants so as to ensure that all requirements are covered in accordance with ADB’s *Handbook on Resettlement*.

21. For Scheme B, the consultant will develop a resettlement framework to be applied for the subprojects to be appraised by NHAI. The framework will set out the policies and procedures to be followed in preparing the resettlement plans of subsequent subprojects. In addition, the consultant will prepare a manual on the resettlement so as to facilitate the preparation of resettlement plans by NHAI for noncore subprojects. The manual will essentially be a compilation of relevant parts of ADB's guidelines and checklists applicable for national highway upgrading. It should also list, among others, all elements to be appraised by NHAI, and procedural requirements and activities for each stage of project preparation and processing, and should note the main areas requiring the special attention of NHAI in its appraisal of subprojects. The manual should include information on the arrangements under which NHAI would screen, develop, and submit to ADB subproject RPs at appraisal and/or prior to the commencement of civil works, in line with ADB's Policy on Involuntary Resettlement. The consultant will identify, if found necessary, any requirements for capacity building in resettlement and associated areas.

22. The consultant will engage a team of local researchers to conduct necessary field surveys for the social assessment and RPs.

2. Domestic Social Assessment Specialist

23. For Schemes A, B, and C, the consultant will undertake a social assessment in accordance with ADB's *Handbook for Poverty Reduction and Social Assessment*, addressing key social issues such as land acquisition, resettlement, poverty, indigenous people, HIV/AIDS diseases, gender issues, labor including child labor, and stakeholders' participation. If found necessary, the consultant will carry out necessary surveys on indigenous peoples along these project influence areas, and develop an indigenous peoples development plan in accordance with ADB's Indigenous People's Policy.

24. For Scheme B, the consultant will prepare a social development manual. The manual will essentially be a compilation of relevant parts of ADB's guidelines and checklists applicable for national highway upgrading. It should also list, among others, all elements to be appraised by NHAI, and procedural requirements and activities for each stage of project preparation and processing, and should note the main areas requiring the special attention of NHAI in its appraisal of subprojects.

25. In addition, the consultant will carry out a study for assessing the potential impact of the Project on trafficking of women and children, and HIV/AIDS epidemic in the Project influence areas with use of a qualified nongovernment organization (NGO). The NGO will carry out rapid assessments at selected communities to assess (i) the level of vulnerability of the communities to external changes (e.g., assessment on whether or not the project will be located in an area particularly prone to trafficking or out migration during periods of environmental disaster (flood, erosion, or hungry seasons); (ii) current trend and/or qualitative information on HIV/AIDS and trafficking in the Project influence areas; and (iii) the current pattern of migration in the Project influence areas. Based on the findings of these field surveys, the consultant would assess whether highway projects can effectively address the women/children trafficking issue, and, if so, what specific measures/activities are to be taken as a part of the highway projects.