



# Technical Assistance Report

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Project Number: 39225  
September 2008

## Bhutan: Preparing the Road Network Project II (Financed by the Japan Special Fund)

## CURRENCY EQUIVALENTS

(as of 5 June 2008)

Currency Unit	–	ngultrum (Nu)
Nu1.00	=	\$0.023
\$1.00	=	Nu42.60

## ABBREVIATIONS

ADB	–	Asian Development Bank
DOR	–	Department of Roads
EA	–	executing agency
EIA	–	environmental impact assessment
EMP	–	environmental management and monitoring plan
NEC	–	National Environmental Commission
NGO	–	nongovernment organization
OM	–	operations manual
PPTA	–	project preparatory technical assistance
PSA	–	poverty and social analysis
SARD	–	South Asia Department
TA	–	technical assistance

## TECHNICAL ASSISTANCE CLASSIFICATION

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

## NOTE

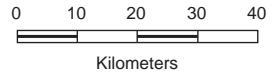
In this report, "\$" refers to US dollars.

<b>Vice-President</b>	B.N. Lohani, Vice-President-in-Charge, Operations 1
<b>Director General</b>	K. Senga, South Asia Department (SARD)
<b>Director</b>	K. Higuchi, Transport and Communications Division, SARD
<b>Team leader</b>	A. Ahonen, Transport Specialist, SARD
<b>Team members</b>	L. M. Tai, Social Development Specialist, SARD
	D. Utami, Senior Environment Specialist, SARD
	S. Widowati, Head, Project Administration Unit, SARD
	H. Yamaguchi, Senior Transport Specialist, SARD

# BHUTAN ROAD NETWORK PROJECT II

- ⊛ National Capital
  - ⊙ District Capital
  - City/Town
  - ▲ Pass
  - Up Gradation
  - New Construction
  - East–West National Highway
  - National Highway
  - - - District Boundary
  - - - International Boundary
- Boundaries are not necessarily authoritative.

PEOPLE'S REPUBLIC OF CHINA



## I. INTRODUCTION

1. The Government of Bhutan (the Government) has requested project preparatory technical assistance (PPTA) from the Asian Development Bank (ADB) to prepare the Road Network Project II.<sup>1</sup> The technical assistance (TA) is included in the *Country Operations and Business Plan 2008–2010, Bhutan*.<sup>2</sup> An ADB Fact-Finding Mission visited Bhutan from 29 May to 3 June 2008 for the proposed TA, and reached agreement with the Government on the TA's impact, outcome, outputs, implementation arrangements, cost, financing arrangements, and terms of reference for consulting services. The design and monitoring framework is in Appendix 1.

## II. ISSUES

2. A large segment of the rural population of Bhutan has limited access to markets and modern services because of the harsh geography and limited reach of the domestic transport system. There are no domestic flights, no railways, and no navigable rivers. Many areas are still not served by roads, while the network of mule tracks is extensive. Most of the poor, especially in rural areas, feel that the Government should prioritize road infrastructure and bridges to improve their living conditions.

3. The oldest highway in Bhutan is the Phuentsholing–Thimphu, which was constructed in 1962. The national road network in the country has since expanded, especially with the improvement and widening of the East–West national highway Thimphu–Trashigang.<sup>3</sup> The country's road network, as of June 2007, comprised 4,946.6 kilometers (km) of serviceable roads, including 1634.3 km of national highways, 481.2 km of district roads, 809.2 km of feeder roads, 150.6 km of urban roads, 716.9 km of farm roads, and 559.6 km of forest roads. The number of vehicles in Bhutan increased from 13,600 in 1997 to over 35,000 by early 2008, which represents an annual growth rate of over 15%. Almost 90% of vehicles are in the western areas of Thimphu and Phuentsholing, over two thirds of all light vehicles are in the capital area, while 70% of all trucks are registered in Phuentsholing. The increase in the number of private vehicles in recent years has caused road safety concerns. The Government's Road Safety and Transport Authority reported 1,168 vehicle crashes and 49 fatalities in 2005, which increased from 230 crashes and 15 fatalities in 1999. The crash fatality rate in 2005 was 15.4 deaths per 10,000 vehicles per year, which is considered significantly high.

4. Despite the expansion of the road network, both connectivity and coverage remain inadequate, especially in eastern Bhutan where roads only reach major towns and most settlements are hidden in the steep hillsides of remote and isolated valleys. The country is dependant on a single East–West national highway running through the northern part of the country. The absence of a similar east-west highway running through the south has constrained travel in the southern part of the country.

5. The Government's strategy in road network development has been guided by the Road Sector Master Plan (2007–2027), which focuses on improving access and connectivity throughout the country. The 10<sup>th</sup> Five-Year Plan (2008–2013) prioritizes completion of the southern east–west corridor, stretching from Sipsoo to Diafam (794 km), and consisting of upgrades to an existing 288 km of road and new construction of the remaining 506 km.

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<sup>1</sup> The PPTA first appeared in the business opportunities section of ADB's website on 27 June 2008.

<sup>2</sup> ADB. 2007. *Country Operations and Business Plan 2008–2010, Bhutan*. Manila.

<sup>3</sup> The improvement of the Thimphu–Trashigang national highway was supported by ADB. 2000. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Kingdom of Bhutan for the Road Improvement Project*. Manila (Loan 1763-BHU, approved on 3 October 2000, completed in 2006).

Bhutanese traveling from the southwestern to southeastern parts of the country, and vice-versa, are currently using Indian roads that are located south of the Bhutan–India border.

6. In addition, being a land-locked country, road access plays a vital part in trade and commerce of Bhutan. India is Bhutan's biggest trading partner accounting for some 90% of the country's imports and 70% of its exports. Currently, there is only one north–south road corridor, which connects Bhutan with India. This is located in western Bhutan. Bhutan's exports to Bangladesh also travel via India. In order to increase the trade flows, reduce costs, and provide greater integration of national road network, it is necessary to improve additional north–south trading routes.

7. Along Bhutan's southern corridor, the western part has emerged as an economic growth center. Improving transport connectivity in this area will increase the potential benefits of economic development. In the middle part of the southern corridor, the east–west connection can be established with minimal investment by utilizing the available north–south connections. Connecting the eastern part of the southern corridor to the country's road network will promote socioeconomic development and reduce extreme poverty. Improvement connectivity with existing roads connecting India and Bangladesh will promote subregional economic cooperation. The Government and ADB have agreed to focus the proposed TA's resources on a feasibility study for (i) a national highway in the eastern and western ends of the southern east–west corridor, and (ii) feeder roads in the middle part of the corridor.

8. Construction quality is a critical element for sustainable operation and management of the proposed roads, and requires strengthening the capacity of both the Government and private sector in quality assurance and control. The Government is expected to provide adequate funds for road maintenance. In addition, the Department of Roads (DOR) may require reviewing-design standards, design quality, schedule of rate, and quality assurance systems to be reflected in construction supervision and works contracts. The capacity of the private sector also needs to be strengthened. The Government is considering a strategy of strengthening the capacity of local contractors through, for example, more competition among regional contractors by increasing the size of contract packages. The proposed TA will reflect possible actions on the ensuing loan such as enhancement of works contracts and contract packaging. Another advisory technical assistance to improve construction quality, which is in the pipeline for approval in 2009, will be reflected in the ensuing loan. The advisory technical assistance will be processed in a timely fashion and implemented in parallel with the proposed PPTA so that quality control systems will be in place for implementation of the ensuing loan.

### III. THE TECHNICAL ASSISTANCE

#### A. Impact and Outcome

9. The TA will impact road network efficiency in the southern east–west corridor and subregional connectivity, contributing to expanded economic development and regionally-balanced development, leading to poverty reduction. These goals will be achieved by connecting Manitar (Chhukha District) to Kerabari (Dagana District) and Samdrupcholing to Diagam (Sjonhar District), and constructing Tsebar-Mikuri-Shingchungri (Pemagatshel District) and Nimtola to Lhamoizingkha (Sarpang District) feeder roads.<sup>4</sup> The outcome of the TA will be a

<sup>4</sup> Samdrupcholing – Diagam is part of South Asian Association for Regional Cooperation (SAARC) Road Corridor 5 (Samdrupcholing – Guwahati, India) identified by SAARC Regional Multimodal Transport Study that was endorsed by 14th SAARC Summit. While Nimtola – Lhamoizingkha is also connected to Barabisha in India.

comprehensive study to inform project design for the ensuing loan. The design and monitoring framework is in Appendix 1.

## B. Methodology and Key Activities

10. The main deliverables of the TA include: (i) feasibility study, (ii) environmental study, (iii) social impact assessment, (iv) resettlement plans, (v) preliminary engineering design, and (vi) implementation arrangement. The outline terms of reference for the consultants is in Appendix 4. The roads selected for the feasibility study under the proposed TA will represent the most urgently-needed connections along the southern east–west corridor, taking into consideration the importance of supporting economic activities, serving communities, and promoting subregional economic cooperation.

11. The road sections to be studied under the TA are in the table below.

**Road Sections**

No.	Road Name (connecting to)	Total Length	District	Proposed Activities
<b>A. National Roads</b>				
1.	Manitar–Raidak	40 km	Chhukha	Upgradation
2.	Raidak–Kalikhola (Lhamoizingkha)	23 km	Dagana	New Construction
3.	Kalikhola–Kerabari	15 km	Dagana	Upgradation
4.	Samdrupcholing– Jomotshangkha (Difam)	110 km	Sjongkhar	New Construction
<b>B. Feeder Roads</b>				
1.	Tsebar–Mikuri–Shingchungri	61 km	Pemagatshel	New Construction
2.	Nimtola–Lhamoizingkha	65 km	Sarpang	New Construction

km = kilometer.

Source: Government of Bhutan.

12. **Engineering Study.** Surveys on road conditions and traffic will be carried out as required. Future traffic levels will be estimated so that the need for improvement and/or upgrading can be determined and the associated costs estimated. Geological and topographical conditions will be taken into account when proposing improvements and upgrading. Following the results of the economic analysis described below, preliminary design and implementation arrangements will be proposed. Appropriate road safety principles will be incorporated in the design process in the early stages of the Project.

13. **Economic Analysis.** Based on traffic projections, required construction and improvements, and an estimated maintenance program, an economic analysis will be carried out in accordance with ADB's *Guidelines for the Economic Analysis of Projects* (1997). Intervention options may need to be developed to test the optimum feasibility. In estimating the economic internal rate of return, the benefit to the poor in the rural areas will be considered, including social benefits resulting from improved access to roads.

14. **Environmental Studies.** The proposed Project, which involves construction of a new national road, will likely be categorized as an “A” project, in accordance with ADB's *Environmental Assessment Guidelines* (2003). In addition, the proposed Project will require environmental clearance from the National Environmental Commission (NEC). A full EIA report and summary will be prepared in accordance with the Government's related guidelines and procedures, as well as ADB's *Environment Policy* (2002) and EIA guidelines.

15. **Social Studies.** Social analysis will be carried out according to ADB's *Handbook on Social Analysis* (2007). If required, the project will prepare a resettlement and/or indigenous peoples framework or plans consistent with ADB's *Involuntary Resettlement Policy* (1995) and *Policy on Indigenous Peoples* (1998). The initial poverty and social analysis is in Appendix 2.

### **C. Cost and Financing**

16. The total cost of the TA is estimated at \$815,000 equivalent. It is proposed that \$650,000 will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan to support consultants, equipment, survey, and other implementation costs. The Government will finance \$165,000 equivalent through in-kind contributions. The detailed cost estimates and the financing plan are in Appendix 3. The Government has been informed that approval of the TA does not commit ADB to finance any ensuing project.

### **D. Implementation Arrangements**

17. DOR will be the Executing Agency (EA) for the TA. A project manager will be appointed for day-to-day supervision of the TA. The Government has assured ADB that all required counterpart staff, office space, furniture, maps, reports, and other support services will be provided to the consultants on the basis of availability. All equipment for the TA will be procured according to ADB's *Procurement Guidelines* (2007, as amended from time to time) and turned over to DOR upon TA completion.

18. An international consulting firm, in association with a national consulting firm or individual national consultants, will be recruited to provide 17 person-months of international consultancy and 14 person-months of national consultancy, with expertise in the areas of road, highway, bridge, and geological engineering and road and transport economics. A national consultant (4 person-months) will be recruited on an individual basis to carry out a social analysis and resettlement assessment. In addition, one international consultant (2 person-months) and one national consultant (4 person-months) will be recruited, each on an individual basis, to carry out an environmental assessment of the proposed project. All consultants will be engaged by ADB 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.

19. The TA's estimated starting date is November 2008 and the estimated closing date is June 2009. A workshop, which will include all relevant central agencies and dzongkhags (provinces), will be held to disseminate the output of the TA.

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

20. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$650,000 on a grant basis to the Government of Bhutan for preparing the Road Network Project II, and hereby reports this action to the Board.

## DESIGN AND MONITORING FRAMEWORK

<b>Design Summary</b>	<b>Performance Targets and/or Indicators</b>	<b>Data Sources and/or Reporting Mechanisms</b>	<b>Assumptions and Risks</b>
<p><b>Impact</b> An efficient road transport system supporting enhanced domestic and subregional connectivity in the southern east–west corridor, contributing to balanced economic development and subregional cooperation, leading to poverty reduction.</p>	<p>Increased domestic and subregional cargo and passenger transport Reduced travel time Reduced accident</p>	<p>Statistics and survey from Department of Roads (DOR), Road Safety and Transport Authority (RSTA), and provincial administrations  Traffic survey Project completion report</p>	<p><b>Assumptions</b> Continued complementary external assistance, and Government’s commitment to developing other economic infrastructure, and providing of basic social services.  Increased availability of transport services following improvement of the project roads</p>
<p><b>Outcome</b> Project design, agreed upon by the Asian Development Bank (ADB) and the Government of Bhutan (Government) that will improve domestic and subregional transport connectivity in the southern east–west corridor.</p>	<p>Agreed investment proposals that reflect the priority of the Government and satisfy ADB policy requirements.</p>	<p>Project documents</p>	<p><b>Assumption</b> Buy-in to proposed investment projects by the Government and ADB’s Board of Directors</p>
<p><b>Outputs</b> Feasibility study of about 190 kilometers (km) of national highways, 125 km of feeder roads, and 20 bridges, including economic analysis, and environmental and social impacts studies  Project performance monitoring system and base line survey</p>	<p>Agreement on feasibility of roads, including completed environmental and social safeguard documents, reached by month 6.  Agreement on project performance monitoring system reached by month 6.  Baseline survey completed by month 6.</p>	<p>Consultants’ reports  Aide memoire and memorandum of understanding of ADB’s review missions</p>	<p><b>Assumptions</b> The Government will provide counterpart support and inputs effectively.  Effective monitoring and supervision of technical assistance (TA) activities  Consultants perform as expected</p>
<p><b>Activities with Milestones</b></p> <p><b>ADB</b> 1.1 Recruit consultants in coordination with the Government. 1.2 Monitor and supervise TA activities regularly. 1.3 Guide TA activities through inception and regular review missions. 1.4 Facilitate necessary coordination.</p>			<p><b>Inputs</b></p> <ul style="list-style-type: none"> <li>• ADB \$650,000</li> </ul> <p>A consulting firm for preparing feasibility study and individual consultants for preparing environmental and social safeguard documents.</p>

<b>Activities with Milestones</b>	<b>Inputs</b>
<p><b>The Government</b></p> <p>2.1 Appoint counterpart staff including the TA project manager.  2.2 Provide consultants with office space including furniture and utilities.  2.3 Provide consultants with access to data, records and other information required.  2.4 Monitor and supervise TA activities in close coordination with ADB.</p> <p><b>Consulting Firm</b></p> <p>3.1 Inception report by month 1  3.2 Draft final report by month 6  3.3 Final report after comments from Government and ADB  3.4 Monthly progress reports</p> <p><b>Social Development-cum-Resettlement Specialist</b></p> <p>4.1 Conduct poverty and social assessment of the project roads and prepare the report.  4.2 Prepare summary poverty reduction and social strategies.  4.3 Prepare resettlement plans for the project roads.  4.4 Prepare indigenous peoples development plans (if required) for the project roads.</p> <p><b>Environment Specialists</b></p> <p>5.1. Prepare scoping and terms of reference required for conducting the environmental impact assessment (EIA) to be approved by National Environmental Committee and ADB.  5.2. Conduct necessary surveys.  5.3. Prepare EIA report, including environmental management and monitoring plan, and summary of EIA.</p>	<p><b>• Government</b></p> <p>\$165,000 counterpart financing by the Government to provide (i) counterpart staff and engineers to work with the consultant team; (ii) office space, including furniture and utilities; and (iii) access to data, records, and other information.</p>

ADB = Asian Development Bank, EIA = environmental impact assessment, TA = technical assistance

## INITIAL POVERTY AND SOCIAL ANALYSIS

Country/Project Title:	Bhutan/Road Network Project II		
Lending/Financing Modality:	Japan Special Fund	Department/ Division:	South Asia Department/ Transport and Communications Division

<b>I. POVERTY ISSUES</b>
<p><b>A. Linkages to the National Poverty Reduction Strategy and Country Partnership Strategy:</b> The Bhutan National Poverty Reduction Strategy identifies remoteness and isolation as the major causes of poverty in Bhutan and prioritizes the extension and improvement of physical infrastructure, inclusive communications, and planned urbanization as strategic interventions to combat poverty. The Bhutan Country Operations and Business Plan (2008–2010)<sup>a</sup> prioritizes ADB assistance to the transport sector to enhance the connectivity and accessibility of remote rural areas.</p>
<p><b>B. Targeting Classification</b></p> <p>1. Select the targeting classification of the project:</p> <p><input checked="" type="checkbox"/> General Intervention   <input type="checkbox"/> Individual or Household (TI-H);   <input type="checkbox"/> Geographic (TI-G);   <input type="checkbox"/> Non-Income Millennium Development Goals (TI-M1, M2, etc.)</p> <p>2. Explain the basis for the targeting classification:</p> <p>The ensuing Project promotes economic development and poverty reduction in the southern east-west corridor through road linkages to economic hubs and administrative centers, as well as increased accessibility to and connectivity of remote rural areas.</p>
<p><b>C. Poverty Analysis</b></p> <p>1. If the project is classified as TI-H, or if it is policy-based, what type of poverty impact analysis is needed? <b>N.A.</b></p> <p>2. What resources are allocated in the project preparatory technical assistance (PPTA)/due diligence?</p> <p>Consultants' terms of reference will include brief surveys and analysis to determine the poverty impact and required interventions (if any).</p> <p>3. If GI, is there any opportunity for pro-poor design (e.g., social inclusion subcomponents, cross subsidy, pro-poor governance, and pro-poor growth)?</p> <p>Some proposed road components are located in districts with a high poverty incidence. The Project will provide opportunities and benefits to poor people through employment as laborers. They will also benefit from nongovernment organization (NGO) training on health and safety issues, women and child trafficking, and HIV/AIDS programs.</p>
<b>II. SOCIAL DEVELOPMENT ISSUES</b>
<p><b>A. Initial Social Analysis</b></p> <p>Based on existing information:</p> <p>1. Who are the potential primary beneficiaries of the project? How do the poor and the socially excluded benefit from the project?</p> <p>Road infrastructure improvement is critical to the economic development of the area. Besides providing better transport services, road infrastructure improvements will reduce travel time and transport costs. Improved roads will increase the local population's access to health, education and other social services; and open new economic and employment opportunities through linkages to new markets, production centers, and other economic opportunities. Thus, there is a strong link between transport and poverty reduction in the area. The direct beneficiaries are the road users from the southern part of the country. Benefits will also extend nationwide by lessening the burden of the northern east-west road network.</p>

2. What are the potential needs of beneficiaries in relation to the proposed project?  
 Road accessibility; availability of electricity, health, and education facilities; and other services.

3. What are the potential constraints in accessing the proposed benefits and services, and how will the project address them?  
 No constraints are envisaged at this stage. Efforts will be made to address those constraints if identified during the PPTA study.

**B. Consultation and Participation**

1. Indicate the potential initial stakeholders.  
 Dzongkhag (provincial) administrative centers in the southern east–west corridor (Chhukha, Dagana, Sarpang, SJongkhar, and Pemagatshel), nongovernment organizations involved with transport and environment sectors; other development partners active in transport sector; community groups; and road users and transport associations

2. What type of consultation and participation (C&P) is required during the PPTA or project processing (e.g., workshops, community mobilization, involvement of nongovernment organizations and community-based organizations, etc.)?  
 Workshops, involvement of NGOs and business support organizations, and community briefings

3. What level of participation is envisaged for project design?  
 Information sharing     Consultation     Collaborative decision making     Empowerment

4. Will a C&P plan be prepared?  Yes     No    Please explain.

**C. Gender and Development**

1. What are the key gender issues in the sector/subsector that are likely to be relevant to this project/program?  
 Women and men will benefit equally from the Project through employment opportunities during construction and lower costs of transport after Project completion. The impact of an improved transport system upon women will be assessed at the PPTA stage. Efforts will be made to identify possible positive and negative impacts on women, and to provide indirect benefits or mitigating features (e.g., jobs for women in project construction work, information campaigns on HIV/AIDS risks, and special resettlement assistance to households headed by women).

2. Does the proposed project/program have the potential to promote gender equality and/or women's empowerment by improving women's access to and use of opportunities, services, resources, assets, and participation in decision making?  Yes     No    Please explain.

3. Could the proposed project have an adverse impact on women and/or girls or to widen gender inequality?  
 Yes     No    Please explain

**III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS**

Issue	Nature of Social Issue	Significant/Limited/No Impact/Not Known	Plan or Other Action Required
<b>Involuntary Resettlement</b>	The PPTA will identify any potential land acquisition and resettlement required by the proposed Project.	Significant	<input checked="" type="checkbox"/> Full Plan <input type="checkbox"/> Short Plan <input type="checkbox"/> Resettlement Framework <input type="checkbox"/> No Action <input type="checkbox"/> Uncertain

Issue	Nature of Social Issue	Significant/Limited/ No Impact/Not Known	Plan or Other Action Required
<b>Indigenous Peoples</b>	The PPTA will identify any indigenous peoples and/or ethnic minorities along the Project's roads and the likely impact the Project will have upon them.	Not known	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input type="checkbox"/> Indigenous Peoples Framework <input type="checkbox"/> No Action <input checked="" type="checkbox"/> Uncertain
<b>Labor</b> <input checked="" type="checkbox"/> Employment Opportunities <input type="checkbox"/> Labor Retrenchment <input type="checkbox"/> Core Labor Standards	The Executing Agency expressed commitment to ensuring that the contracts for civil works require contractors to (i) not employ or use children for labor; and (ii) follow and implement legally-mandated provisions on labor (including equal pay for equal work), health, safety, sanitation, and working conditions.	No Impact	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input checked="" type="checkbox"/> No Action <input type="checkbox"/> Uncertain
<b>Affordability</b>	No affordability issues are expected since no road-user fees or taxes will be levied on the beneficiaries, other than taxes on the purchase of motorized vehicles.	No Impact	<input type="checkbox"/> Action <input checked="" type="checkbox"/> No Action <input type="checkbox"/> Uncertain
<b>Other Risks and/or Vulnerabilities</b> <input checked="" type="checkbox"/> HIV/AIDS <input type="checkbox"/> Human Trafficking <input type="checkbox"/> Others (conflict, political instability, etc.), please specify	The issues of HIV/AIDS, gender, human trafficking, and road safety will be explored during PPTA stage.	Not Known.	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input type="checkbox"/> No Action <input checked="" type="checkbox"/> Uncertain
<b>IV. PPTA/DUE DILIGENCE RESOURCE REQUIREMENT</b>			
<p>1. Do the Terms of Reference for the PPTA (or other due diligence) include poverty, social and gender analysis and the relevant specialist/s?  <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No    If no, please explain why.</p> <p>2. Are resources (consultants, survey budget, and workshop) allocated for conducting poverty, social and/or gender analysis, and C&amp;P during the PPTA/due diligence?    <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No    If no, please explain why.</p>			

<sup>a</sup> ADB. 2007. *Country Operations and Business Plan 2008–2010, Bhutan*. Manila.

ADB = Asian Development Bank, C&P = consultation and participation, HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, NGO = nongovernment organization, PPTA = project preparatory technical assistance, TI-G = targeted intervention geographic, TI-H = targeted interventions individual or household.

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

<b>Item</b>	<b>Total Cost</b>
<b>A. Asian Development Bank (ADB) Financing<sup>a</sup></b>	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	350.0
ii. National Consultants	65.0
b. International and Local Travel (including vehicle)	35.0
c. Reports and Communications	3.0
2. Equipment (computer, printer, etc.)	3.0
3. Surveys (topographical, geotechnical, hydrological, social and environmental survey works, including vehicle)	130.0
4. Miscellaneous Administration and Support Costs including Workshops	3.0
5. Representative for Contract Negotiations	6.0
6. Contingencies	55.0
<b>Subtotal (A)</b>	<b>650.0</b>
<b>B. Government Financing</b>	
1. Office Accommodation	70.0
2. Remuneration and Per Diem of Counterpart Staff	60.0
3. Others	35.0
<b>Subtotal (B)</b>	<b>165.0</b>
<b>Total</b>	<b>815.0</b>

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

## OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

### A. Introduction and Objectives

1. The Government of Bhutan has requested the Asian Development Bank (ADB) to provide technical assistance (TA) for the formulation of projects suitable for financing by ADB. The feasibility study will cover the candidate road sections as follows:

<b>Candidate Road Sections</b>						
No.	Road Name (connecting to)	Total Length	District	Proposed Activities	Environmental Conditions Along the Road	Other Remarks
<b>A. National Roads</b>						
1.	Manitar–Raidak	40 km	Chhukha	Upgradation	Existing road (partly up to base course level and partly earthen)	Improvement of exist. Road by carriageway widening from 3.5m to 6.6m + curve widening
2.	Raidak–Kalikhola (Lhamoizingkha)	23 km	Dagana	New Construction	Existing trail passes through agriculture and settlement areas	New Construction
3.	Kalikhola–Kerabari	15 km	Dagana	Upgradation	Existing earthen road	Improvement of exist. Road by carriageway widening from 3.0m to 6.5m + curve widening + correction of alignment
4.	Samdrupcholing–Jomotshangkha (Diafam)	110 km	Sjongkhar	New Construction	Existing trail passes through agriculture and settlement areas	New Construction
<b>B. Feeder Roads</b>						
1.	Tsebar–Mikuri–Shingchungri	61 km	Pemagatshel	New Construction		New Construction
2.	Nimtola–Lhamoizingkha	65 km	Sarpang	New Construction		New Construction

km = kilometer.

Source: Government of Bhutan.

2. The feasibility study will assess the proposed Project's engineering, environmental, social, and economic feasibility. Implementation arrangements will be proposed—including design standard and technical approach, and contract packaging and implementation schedule—taking into consideration the available funds, optimum benefits, and implementation readiness.

3. The team leader must have expertise in all aspects of transport and road engineering. The team leader will have overall responsibility for implementing the technical assistance and managing a team of consultants with expertise in transport economics, road and bridge engineering, geology, social development, and the environment. The TA will require 17 person-months of international and 14 person-months of national consulting services. The international consultants include the (i) team leader, and road and highway, and pavement engineer (6 person-months); (ii) road/transport economist (3 person-months); (iii) road/highway structural and bridge engineer (5 person-months); and (iv) geotechnical/materials engineer (3 person-months). The national consultants include the (i) deputy team leader and road/civil/structural engineer (7 person-months), (ii) road/transport economist (4 person-months), and (iii) geotechnical/materials engineer (3 person-months). In addition, (i) one individual national consultant (4 person-months) will be recruited to carry out a social analysis and resettlement assessment, and (ii) one individual international consultant (2 person-months) and one individual national consultant (4 person-months)

will be recruited to carry out an environmental assessment of the proposed Project. The individual consultants will work in close consultation with the engineering consultants.

4. All consultants will be engaged by ADB 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 a simplified technical proposal. The estimated starting date is November 2008 and the estimated closing date is June 2009.

5. **Government Contribution.** On the basis of availability, the Government will provide the consultants with:

- (i) office space, including furniture and utilities;
- (ii) access to data, records, map, and other information required to perform the assigned tasks; and
- (iii) counterpart staff and engineers to work with the consultant team.

## B. Consulting Firm

### 1. Terms of Reference

#### a. Engineering Study

6. The terms of reference of the consultants include, among other issues, the following studies and activities:

- (i) Review available engineering data and undertake necessary surveys. Survey conditions of the roads identified for the Project, evaluate their pavement strength, determine residual life, and divide the roads into homogenous sections.
- (ii) For the new construction sections, conduct topographical and geological studies; propose alignment, avoiding landslide prone areas where possible; assess the technical feasibility of alternative designs and alignments; and recommend a preferred alignment for further study, with input from the economic, social, and environmental studies.
- (iii) Review existing traffic data; carry out necessary traffic counts, origin destination, and axle load surveys; and forecast traffic for each road section.
- (iv) Survey typical slope-stability problems on the road network, analyze their cause, and develop recommendations for mitigating them.
- (v) Conduct a detailed condition survey, and prepare a preliminary geometric design.
- (vi) Conduct a road safety audit of the preliminary design following ADB's *Road Safety Audit for Road Projects: An Operational Tool Kit* (2003) or a similar procedure acceptable to ADB.
- (vii) Propose a required level of improvement for each road section, including provision of adequate accessibility to nonmotorized road users, and estimate quantities and unit costs of the items of work required; and prepare cost estimates of civil works, including foreign exchange and local components, separately identifying taxes and customs duties.
- (viii) Prepare a summary of technical approach and design standard, taking into account the environment-friendly road construction method applied in the Road Improvement Project.<sup>1</sup>

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<sup>1</sup> ADB. 2000. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Kingdom of Bhutan for the Road Improvement Project*. Manila (Loan 1763-BHU, approved on 3 October 2000).

## **b. Economic Analysis**

7. The consultants will conduct the following studies and activities:
- (i) Evaluate the proposed investment in accordance with ADB's *Guidelines for the Economic Analysis of Projects* (1997), taking into account the reduction of travel time and transport costs in project areas, freight-value-deterioration savings (including agricultural produce), safety benefits, and other net social benefits resulting from improved access.
  - (ii) Identify the economic benefits of each road section by comparing with-project and without-project scenarios. Calculate the economic internal rate of return for each investment component and conduct sensitivity tests for the economic internal rate of return by applying varying scenarios.
  - (iii) Working with design engineers, use economic analysis to evaluate alternative options (e.g., alignment, improvement standard and engineering design), and make a recommendation based on economic performance.
  - (iv) Review the structure of the road transport industry and assess the degrees of competitiveness in service provision.

## **c. Implementation Arrangements**

8. The consultants will prepare the following:
- (i) Propose a combination of road sections for the ensuing investment project, taking into consideration optimum benefits, minimum impact, availability of funds, and implementation readiness.
  - (ii) Propose appropriate contract packages, indicate the suitable procurement method for each package, and prepare draft standard bid documents accordingly. Take into account the capacity of local contractors and include possible arrangements for maintenance to be included in a construction contract.
  - (iii) Carry out a preliminary procurement capacity assessment to ensure that all necessary arrangements related to the Project's implementation (procurement plan, contract management, design, monitoring and evaluation) have been addressed and accurately reflect existing capacity within the EA.
  - (iv) Prepare the proposed project implementation schedule.
  - (v) Recommend next steps and activities to ensure project implementation readiness.
  - (vi) Develop a draft project design and monitoring framework and develop the baseline indicators for monitoring the impact of the proposed Project in accordance with ADB's *Guidelines on Design and Monitoring Framework* (2007).
  - (vii) In line with the draft design and monitoring framework, develop project performance monitoring and evaluation in accordance with ADB's *Project Performance Management System Handbook* (2007).
  - (viii) Assess the Executing Agency's (EA) financial management capacity in accordance with the guidelines provided in ADB's *Financial Management and Analysis of Projects* (2005).

## **2. Time Schedule and Report Requirements**

9. The assignment is expected to commence 2 weeks after the signing of the contract. The consulting services will be completed in June 2009.

10. The following reports will be submitted, in English, by the consultant to the Government (5 copies) and ADB (2 copies). The final report will also be submitted in electronic format. Monthly progress reports are to be submitted in electronic format only.

- (i) **Inception report.** This brief report should be submitted within 1 month of the start of the Project. It should outline any changes from the consultants' proposal in the approach, methodology, or work plan—as well as the associated cost implications for the consultants' services—that are required to fulfill the terms of reference.
- (ii) **Draft final report.** To be submitted within 6 months of the start of the Project.
- (iii) **Final report.** To be submitted within 2 weeks of receipt of comments from the Government and ADB.
- (iv) **Progress reports.** To be submitted monthly to update Project progress.

### C. Environmental Consultants

11. The consultants will conduct the following studies and activities:

- (i) Conduct environmental impact assessment (EIA) in accordance with (a) ADB's *Environmental Assessment Guidelines* (2003); (b) ADB's *Environmental Policy* (2002); and (c) the Government's environmental acts and regulations.
- (ii) Undertake the reconnaissance survey for all proposed roads, and prepare the scoping and terms of reference of the EIA, including study areas, sampling methods, and an approach for assessing environmental impacts.
- (iii) Process approval for the scope and terms of reference from ADB and the National Environmental Commission.
- (iv) Undertake data collection to describe the environmental conditions of the project areas and consult with local communities to assess their environmental concerns. Include separate detailed environmental conditions for each road.
- (v) Gather data from the engineering consultant on the detailed project activities for each project road.
- (vi) Assess the potential environmental impacts (direct and indirect impacts, and accumulated impacts) of each road and prepare the environmental management and monitoring plan (EMP).
- (vii) Undertake second consultation with people affected by construction of new roads.
- (viii) Prepare the final draft EIA and its summary, including an EMP, for each project road. The EMP should identify (a) institutional arrangements necessary for its implementation, and potential involvement of community-based organizations and NGOs; and (b) environmental costs, including for the environmental monitoring plan.

### D. Social Development and Resettlement Consultant

#### 1. Poverty and Social Analysis

12. Poverty and social analysis (PSA) will be conducted in accordance with the ADB's *Handbook on Social Analysis* (2007); *Policy on Indigenous People* (2006); and *Policy on Gender and Development*. The consultant will prepare (i) an indigenous peoples screening and impact categorization checklist for each subproject, (ii) PSA reports, (iii) summary poverty reduction and social strategies, and (iv) an indigenous peoples development plan, if required.

13. The consultant will conduct the following studies as required:

- (i) Conduct interviews, focus groups, or other meetings with stakeholders to confirm their interests, constraints, and willingness to participate in the Project; the suitability of the sites; and alternative design options.
- (ii) Conduct poverty and social assessment; provide a socioeconomic profile of 20% of the project-influenced areas; and address poverty, indigenous peoples, gender, HIV/AIDS, human trafficking, and labor issues, including child labor. Assess whether there are any existing Government or NGO programs to address the social issues and health risks related to road construction.
- (iii) Assess Bhutanese legislation to determine whether it is in compliance with International Federation of Consulting Engineers (FIDIC) provisions on (a) mitigation of social/health risks associated with road construction, with emphasis on STD and HIV/AIDS; and (b) equal pay for work of equal value.
- (iv) Identify whether the Project will be located in, or pass through, areas with significant indigenous peoples settlements. If needed, propose a way to include indigenous peoples in project planning and implementation, generate an overview of population characteristics in the project area, and anticipate project impacts. Prepare and complete a checklist for indigenous peoples screening and impact categorization for each subproject.
- (v) Based on the findings of indigenous peoples screening and impact categorization, prepare an (a) indigenous peoples development plan, if required, and (b) specific actions to address indigenous peoples issues that can be incorporated into resettlement plans. Also, prepare reports on PSA that include mitigation plans to address social issues.

## **2. Involuntary Resettlement**

14. The consultant will prepare (i) involuntary resettlement screening and impact categorization checklists, and (ii) resettlement plans and a summary in accordance with ADB's *Policy on Involuntary Resettlement* (1995), *Operations Manual (OM)/F2 on Involuntary Resettlement* (2003), and other related policies such as the *Public Communications Policy* (2005). For guidance, the consultant may use the ADB's *Handbook on Resettlement* (1998), involuntary resettlement checklist, *Bhutan Land Act* (2007), and relevant local laws and regulations related to land acquisition and resettlement.

### **a. Involuntary Resettlement Screening and Categorization**

15. Among other tasks, the consultant will:

- (i) Prepare and complete screening and an impact categorization form for involuntary resettlement resulting from the Project.
- (ii) Based on the findings of involuntary resettlement screening and impact categorization, prepare an appropriate resettlement plan for each project road in accordance with ADB's *Policy on Involuntary Resettlement* (1995), *Operations Manual (OM)/F2 on Involuntary Resettlement*, and other related policies such as ADB's *Public Communications Policy*. The consultants may use the *Handbook on Resettlement*, involuntary resettlement checklist as a guide; *Bhutan Land Act* (2007); and relevant local laws and regulations related to land acquisition and resettlement.

**b. Resettlement Plans**

16. Among other tasks, the consultant will:

- (i) Conduct a socioeconomic survey of 10% of affected persons and 20% of seriously affected persons, and a 100% census survey to assess the Project's impact on people, properties, common property resources, and livelihoods. The socioeconomic survey will establish the benchmark for monitoring of rest and recreation activities. Consult with affected persons and other stakeholders to identify mechanisms to improve project designs, and minimize resettlement impacts to meet the needs of different stakeholders. Prepare a summary of stakeholder discussions, issues raised, and how the project design was developed to meet stakeholder needs.
- (ii) Record all non-titled occupants at the initial stages so that identity cards can be issued to ensure there is no further influx of people into the project area. The recorded date at the initial stage will serve as an eligibility cut-off date for non-titled occupants. Document fully all consultations with affected persons and compile a list of participants, including officials of the Department of Roads (DOR), and make the records available to DOR.
- (iii) Assess the impact of the Project on the poor and vulnerable groups and indigenous peoples, if any, along the project road corridor. Based on the identified impacts, develop an entitlement matrix for the project-affected people. Assess feasibility and effectiveness of income restoration strategies, and determine suitability and availability of relocation sites.
- (iv) Prepare implementation budgets, sources and timing of funding, and schedule of tasks. Prepare responsibility of tasks; institutional arrangements and personnel for delivering entitlement; internal and external monitoring plans, which include key monitoring indicators; and a grievance redress mechanism.
- (v) Incorporate any other suggestions of the ADB and DOR prior to acceptance of the reports by ADB and DOR.
- (vi) Provide guidance and training workshops to DOR on ADB's *Policy on Involuntary Resettlement, Operations Manual (OM)/F2 on Involuntary Resettlement*—and other related policies, procedural requirements, and required activities—for each stage of project preparation.
- (vii) Disclose the final resettlement plans to the affected persons in accordance with ADB's *Public Communications Policy*.