Technical Assistance to the People’s Republic of Bangladesh for Preparing the Padma Multipurpose Bridge Project (Financed by the Japan Special Fund)

September 2005

Asian Development Bank
CURRENCY EQUIVALENTS
(as of 31 August 2005)

Currency Unit – taka (Tk)
Tk1.00 = $0.0155
$1.00 = Tk64.35

ABBREVIATIONS

ADB – Asian Development Bank
AP - affected person
EIA – environmental impact assessment
EIRR – economic internal rate of return
EMP – environmental management plan
ERD – Economic Relations Division
FIRR – financial internal rate of return
HIV/AIDS – human immunodeficiency virus/acquired immunodeficiency syndrome
IPDP – indigenous people’s development plan
JICA – Japan International Cooperation Agency
JMBPA – Jamuna Multipurpose Bridge Authority
LAP – land acquisition plan
LARP – land acquisition and resettlement plan
MOC – Ministry of Communications
OM – Operational Manual
O&M – operations and maintenance
PPP – public-private partnership
PPTA – project preparatory technical assistance
QCBS – quality- and cost-based selection
RAP – resettlement action plan
RP – resettlement plan
SASEC – South Asian Subregional Economic Cooperation
SEIA – summary environmental impact assessment
SPRSS – summary poverty reduction and social analysis
TA – technical assistance
WACC – weighted average cost of capital

TECHNICAL ASSISTANCE CLASSIFICATION

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

NOTE

In this report, "$" refers to US dollars.
I. INTRODUCTION

1. The Government of Bangladesh requested the Asian Development Bank (ADB) to provide technical assistance (TA) for preparing the proposed Padma Multipurpose Bridge Project for possible ADB financing. A Fact-Finding Mission visited Bangladesh from 27 February to 7 March 2005 and met with responsible officials of the agencies concerned including the Economic Relations Division, Ministry of Finance (ERD); the Ministry of Communications (MOC); and the Jamuna Multipurpose Bridge Authority (JMBA)1 of the Government of Bangladesh. This TA was developed on the basis of the understanding reached during the Mission on the goals, purpose, scope, implementation arrangements, cost, financing arrangements, and terms of reference.2

II. ISSUES

2. Bangladesh is a riverine country and the major rivers flowing through the country are the Ganges, the Jamuna, the Meghna, and the Padma. The Padma River is formed by the confluence of the Ganges and the Jamuna rivers. Historically, this river system has split Bangladesh into several sections, i.e., (i) the northwest zone bordered by the Ganges and the Jamuna rivers; (ii) the east zone, which is east of the Jamuna River where the capital, Dhaka, and the major port, Chittagong, are situated; and (iii) the southwest zone, isolated by the Padma and the Ganges rivers. With the completion of the Jamuna Bridge in June 1998, transport connectivity of the northwest zone to the economically important east zone has improved, thus accelerating the socioeconomic development of the northwest zone. The completion of the Pakshe Bridge in April 2004 provides connectivity between the northwest zone and the southwest zone. The construction of a bridge over the Padma River will mean that the last remaining major bridge necessary to provide comprehensive connectivity between all the major regions of the country will have been completed.

3. The feasibility study for the proposed bridge is being carried out by consultants financed by the Japan International Cooperation Agency (JICA). The findings of the study show that bridging this gap in the domestic road infrastructure network is important for the overall socioeconomic development of Bangladesh because road transport plays an increasingly important role in the country. Between 1971 and 2001, transport demand by all modes in Bangladesh increased at about 6% per annum for passenger traffic and 5% per annum for freight traffic. The modal share of roads increased from 54% in 1971 to 73% in 2001. The provision of a bridge across the Padma River is also important for intermodal connection as it will immediately provide better road access to Mongla Port, which is the country’s second largest port. The bridge will also provide the potential for a rail link to the port if a road-cum-rail bridge option is found feasible. From the subregional perspective, it can provide a second access for transit of goods between the South Asian Subregional Economic Cooperation (SASEC) countries. The proposed project components are (i) a 5,580-meter-long bridge with provision for future rail tracks; (ii) a 12–kilometer (km)-long 2-lane dual carriage approach road; and (iii) 16.3 km-long bank protection works along the river.

4. The Padma multipurpose bridge is expected to generate substantial impacts not only on the transport of goods and people but also on the larger areas of the national and regional economy, thereby facilitating an increase in economic production, employment, and income and

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1 The Jamuna Multipurpose Bridge Authority will be renamed as the Bangladesh Bridge Authority pursuant to a recent decision of the Cabinet.
ultimately poverty reduction. The feasibility study carried out by JICA indicates that construction of the Padma bridge will increase the growth rate of the national gross domestic product by 1.2%, raise value-added factor income by 1.4%, and provide 743,000 person-years of new employment opportunities in total. The southwest zone will receive the biggest impacts from the Padma multipurpose bridge and its regional economic development will be accelerated by the improved access to/from Dhaka, which is the largest market in the country. The bridge will also allow greater mobility for surplus labor force members to go to other regions; and will encourage the setting up of new industrial units, thus generating employment opportunities in the impact zone. Increased employment opportunities and increased labor mobility will also result in higher wage rates for workers in traditional occupations within the impact zone. Hence, the proposed Padma Bridge project can potentially play a very significant poverty reduction role for the southwest zone. The Government will be funding a study for preparing the land acquisition plan (LAP), the resettlement action plan (RAP), and the environmental management plan (EMP). The government-funded study is expected to start in May 2005 and will be completed by October 2005.

5. The Jamuna Bridge impact study also pointed to several factors that can improve the project design: (i) the environmental assessment and the social assessment recommendations will enhance poverty reduction impacts are actually implemented; (ii) there is need for social and poverty impact analysis prior to project implementation; and (iii) the fact that the toll rate was imposed without considering the impact on the poor. The shortcomings pointed out were noted when preparing the terms of reference for this TA. The TA will also consider the macroeconomic and fiscal impacts of proceeding with the proposed project as well as public–private participation options that could potentially reduce the Government’s financial burden and/or increase the efficiency of the implementation, and operation and maintenance (O&M) of the proposed bridge.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

6. The economic development and poverty reduction potential of the bridge can be enhanced through systematic project design incorporating environmental assessment and social assessment recommendations to enhance the poverty reduction impacts. The toll rate options will also be studied, keeping in mind the need to attract private sector investment, if possible, while ensuring that the poor are not unduly adversely impacted. The TA will build on both the JICA feasibility study and the government-funded study on social and environmental safeguards. It will, therefore, review and carry out due diligence on the technical, economic, financial, social, and environmental analyses. The TA will also consider public-private partnership (PPP) options that can potentially reduce the Government’s financial burden and/or increase the efficiency of the implementation, O&M of the proposed Padma bridge. The design and monitoring framework is shown in Appendix 1.

B. Methodology and Key Activities

7. Engineering and Project Management Analysis. The TA will review the engineering aspects of the preliminary study and design prepared by the JICA feasibility study consultants. The TA consultant will ensure that the studies are based on uniform design methodologies and design standards, with allowable variations on account of specific site conditions. Sites will be visited as necessary. Topographic surveys, hydrological risks of changing river morphology, design standards, traffic studies, proposed improvements and alignment, soil and material investigations, pavement options, toll plaza and wayside amenities, drainage and bridge
structures, road safety measures, contract packaging, and cost estimates will be reviewed. The TA will carry out institutional assessment of JMB, focusing on the suitability of the current staff strength and expertise, authority inherent in JMB for successful project management, and its current reporting arrangements. In the institutional assessment, the consultant will take into cognizance institutional arrangements that have proved successful in implementing other major infrastructure projects in Bangladesh, including the Jamuna multipurpose bridge, and make recommendations on the institutional arrangements and powers that need to be granted to JMB to ensure successful implementation of the proposed Padma multipurpose bridge.

8. **Economic Analysis.** Assistance will be provided to supplement JMB efforts in ensuring that the economic analysis is in accordance with ADB’s *Guidelines for the Economic Analysis of Projects*. The TA will review and improve as necessary (i) the feasibility study, consultants’ economic analysis of the proposed Padma Multipurpose Bridge project; and (ii) the traffic forecast, cost estimates, and benefits. Additional surveys will be carried out as necessary. The economic internal rate of return (EIRR) will then be recalculated. Sensitivity analyses will be carried out with the project’s risk assessment. The TA will analyze the poverty reduction impact of subproject roads in accordance with ADB’s *Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects*. The TA will conduct additional surveys as necessary, prepare the benefits distribution analysis, and estimate the poverty impact ratio of the proposed project. In addition, the TA will look into the fiscal implications of the financing, sustainability, and foreign exchange components of the Government taking loans for the implementation of the Project and identify how the Government can raise the revenue necessary to finance its portion of the total cost. The TA will do a comparative economic assessment of the project vis-a-vis other proposed mega projects.

9. **Financial Analysis.** The TA will carry out financial analysis of the proposed project in accordance with ADB’s *Guidelines for the Financial Management and Governance of Investment Projects*. The TA will review project cost estimates and propose financing plan, and prepare financial projections as well as the financial internal rate of return (FIRR) and compare it with the weighted average cost of capital. Sensitivity analysis will be carried out with the project’s risk assessment. The TA will assess financial management by JMB.

10. **Public-Private Partnership Scheme Development.** The TA will design a PPP investment package, including financial evaluation in accordance with ADB’s *Guidelines for the Financial Governance and Management of Investment Projects*. Financial models and PPP options will be developed taking into account the current PPP policy, preference to transfer the commercial and revenue risks to the private sector as much as possible, and best PPP practices in Bangladesh and regional projects. Financial and sensitivity analyses will be carried out, investment packages will be designed, and a framework of concession arrangements covering construction and O&M will be developed. This will also include analysis of affordability and willingness-to-pay surveys. If PPP is found feasible, the consultant will also develop concession agreements and criteria for selection of bidders, and may assist in evaluating proposals and selecting successful bidders.

11. **Environmental Impact Study.** The TA will assist JMB in complying with ADB’s environmental safeguard policies, by ensuring that environmental assessments are prepared in accordance with the Government’s environmental requirements and ADB’s *Environmental Assessment Guidelines* (2003). The consultant will review, verify, and recommend any revision necessary to the environmental management plan prepared by the government-funded consultants and prepare environmental impact assessment (EIA) and summary EIA (SEIA) reports including an environmental management and monitoring plan in accordance with ADB’s
environmental policy, taking into account Bangladesh’s Environmental Preservation Act and Rules, 1997.

12. **Social Impact Study.** The TA will assist JMBA in complying with ADB's social safeguard policies, by ensuring that social analyses are carried out in accordance with ADB's *Guidelines for the Incorporation of Social Dimensions*. The summary initial poverty and social analysis is in Appendix 2. The consultant will review, verify, and revise (as necessary) the LAP and RAP prepared by the government-funded consultants.

C. **Cost and Financing**

13. The total cost of the TA is estimated at $1 million equivalent comprising $480,000 in foreign exchange cost and $520,000 equivalent in local currency cost. The details are in Appendix 3. The TA will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan. The Government will finance $200,000 equivalent by providing office accommodation, support facilities, counterpart staff, local transportation, maps, reports, and other logistical support. The Government has been informed that approval of the TA does not commit ADB to finance any ensuing project.

D. **Implementation Arrangements**

14. JMBA will be the Executing Agency for the TA. JMBA will set up a project implementation unit headed by a project director, who will be responsible for day-to-day implementation of the TA, including coordinating with concerned line ministries, agencies, and external funding agencies. The Government has assured the Mission that all required counterpart staff, office space, furniture, equipment, support facilities for surveys, maps, reports, and other support services will be made available to the consultants in a timely manner. All equipment for the TA will be procured according to ADB's *Guidelines for Procurement* and will be turned over to JMBA upon TA completion.

15. An international consultant firm that can supply a team with expertise in the areas of (i) road and bridge engineering, (ii) macro and transport economic analysis, (iii) financial analysis of transport projects, and (iv) structuring PPP schemes in roads and bridge projects, will be recruited for the TA. Domestic consultants in these fields will be engaged by the international consultant firm, which will have overall responsibility for the TA components. Individual consultants will be recruited to carry out (i) social analysis, poverty impact, and resettlement studies; and (ii) environmental assessment of the proposed project. It is anticipated that a total of 16 person-months international and 34 person-months domestic consulting services will be required. All consultants will be recruited in accordance with ADB’s *Guidelines on the Use of Consultants* and other arrangements for the engagement of domestic consultants satisfactory to ADB. The consultant firm will be selected according to quality- and cost-based selection (QCBS) procedures and a simplified technical proposal will be requested from shortlisted firms. The TA is expected to start in November 2005 and will be completed by May 2006. The outline terms of reference for consultants are in Appendix 4. Seminars and workshops will be held to disseminate the output of the TA.
IV. THE PRESIDENT'S DECISION

16. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of $800,000 on a grant basis to the Government of Bangladesh for preparing the Padma Multipurpose Bridge Project, and hereby reports this action to the Board.
## DESIGN AND MONITORING FRAMEWORK

<table>
<thead>
<tr>
<th>Design Summary</th>
<th>Performance Targets/Indicators</th>
<th>Data Sources/Reporting Mechanisms</th>
<th>Assumptions and Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact</strong></td>
<td>Reduction in travel time</td>
<td>National transport statistics</td>
<td><strong>Assumption</strong></td>
</tr>
<tr>
<td></td>
<td>Increase in volume of road transport services</td>
<td>Surveys</td>
<td>• Private sector responds with new road transport services to southwest zone</td>
</tr>
<tr>
<td></td>
<td>Decrease in road transport charges</td>
<td>Progress reports</td>
<td><strong>Risk</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Project implemented on schedule</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>Submission of acceptable technical, economic, and financial analyses</td>
<td>Tripartite meetings</td>
<td><strong>Assumption</strong></td>
</tr>
<tr>
<td></td>
<td>Preparation of environmental assessment, environmental mitigation, and social and resettlement plan</td>
<td>Progress reports</td>
<td>• Consultants’ performance will be satisfactory.</td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td>Final report to be completed within 6 months of the start of consultants’ services</td>
<td>Tripartite meetings</td>
<td><strong>Assumption</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Progress reports</td>
<td>• Consultants’ performance will be satisfactory.</td>
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<tr>
<td></td>
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<td>Final reports</td>
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</tr>
</tbody>
</table>

### Activities with Milestones

1. Report on technical, economic, and financial viability (6 months from start date)
   1.1 Cost estimates, contract packaging recommendations, and project

### Inputs

- ADB: Approximately 16 person-months of international and 34
<table>
<thead>
<tr>
<th>Management Recommendations</th>
<th>Person-months of domestic consulting services costing not more than $800,000.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 EIRR and FIRR estimates, distribution analysis</td>
<td>• Government: Services in kind on transport, office accommodation, and local counterpart staff. Making available all relevant reports as needed.</td>
</tr>
<tr>
<td>1.3 Recommendations on sources of financing</td>
<td></td>
</tr>
<tr>
<td>2. PPP scheme development (6 months from start date)</td>
<td></td>
</tr>
<tr>
<td>2.1 Design of a viable PPP scheme</td>
<td></td>
</tr>
<tr>
<td>2.2 Formulation of sample bid document</td>
<td></td>
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<tr>
<td>3. Environmental assessment (6 months from start date)</td>
<td></td>
</tr>
<tr>
<td>3.1 Review of previous studies</td>
<td></td>
</tr>
<tr>
<td>3.2 Identification and preparation of remaining requirements to comply with ADB policy</td>
<td></td>
</tr>
<tr>
<td>4. Resettlement, social and poverty impact assessment report (6 months from start date)</td>
<td></td>
</tr>
<tr>
<td>4.1 Review of previous studies</td>
<td></td>
</tr>
<tr>
<td>4.2 Identification and preparation of remaining requirements to comply with ADB policy</td>
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</tbody>
</table>

**Notes:**
- ADB = Asian Development Bank
- EIRR = economic internal rate of return
- FIRR = financial internal rate of return
- PPP = public-private partnership
INITIAL POVERTY AND SOCIAL ANALYSIS (IPSA)

Linkages to the Country Poverty Analysis

| Is the sector identified as a national priority in country poverty analysis? | Yes | Is the sector identified as a national priority in country poverty partnership agreement? | Yes |
| Is the sector identified as a national priority in country poverty analysis? | No |

Contribution of the sector or subsector to reduce poverty in Bangladesh:

The southwest zone has one of the highest poverty rates in the country. One major reason for that is the poor transport connectivity between that zone and the eastern zone where the major centers of economic activities are concentrated. Improving transport connectivity by linking the southwest zone with the east zone will allow for spillover economic activities to be established in the southwest zone, thus contributing to income generation. Economic activities can be complemented by the establishment of road transport services to improve the attractiveness of the zone. Better transport links will also allow for greater labor mobility, thus creating more employment opportunities for residents of the area. The result will be a potential upward pressure on wages even for labor force participants who remain in the southwest zone. These consequences can result in a significant impact on poverty rates.

B. Poverty Analysis

Targeting Classification

What type of poverty analysis is needed?

Poverty assessment will be conducted to (i) identify the poverty profile of the population likely to be impacted by the Project (including road transport users); (ii) assess the relevant market structure and estimate the likely distributive impacts of the Project; (iii) where appropriate, incorporate the needs of the poor, and minimize or compensate for adverse impacts on the poor; (iv) identify, where appropriate, more systematic integration of the Project with other sectoral interventions (health, education, rural development, etc.) to strengthen poverty reduction strategies; and (iv) develop low-cost mechanisms for monitoring to contribute to the understanding of the links between this Project and poverty reduction.

General intervention

C. Participation Process

| Is there a stakeholder analysis? | Yes | No |
| Is there a participation strategy? | Yes | No |

D. Gender Development

Strategy to maximize impacts on women:

A gender action plan will be prepared to address both the opportunities presented by the Project in terms of employment opportunities for women and the potential negative impacts including human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) and trafficking. It will explore opportunities for income and employment in construction activities, with a view to setting targets for the number of women to be employed as well as ensuring equal pay for equal work. The Project will ensure that women and men will have equal opportunities to participate in designing and implementing the Project, and receive similar wages for similar work.

Has an output been prepared? | Yes | No |
### E. Social Safeguards and Other Social Risks

<table>
<thead>
<tr>
<th>Item</th>
<th>Significant/ Not Significant/ None</th>
<th>Strategy to Address Issues</th>
<th>Plan Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resettlement</td>
<td>☑ Significant/ ☐ Not significant/ ☐ None</td>
<td>A full resettlement plan will be prepared.</td>
<td>☑ Full</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>☐ Short</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>☐ None</td>
</tr>
<tr>
<td>Affordability</td>
<td>☑ Significant/ ☐ Not significant/ ☐ None</td>
<td>The study on PPP options will have to consider the optimum toll rates to ensure that the poor obtain benefits by being road users.</td>
<td>☑ Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>☐ No</td>
</tr>
<tr>
<td>Labor</td>
<td>☑ Significant/ ☐ Not significant/ ☐ None</td>
<td>The Project will explore and establish a sound safety management system at the site with monitoring and safety audit functions to ensure the safety of laborers.</td>
<td>☑ Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>☐ No</td>
</tr>
<tr>
<td>Indigenous Peoples</td>
<td>☐ Significant/ ☐ Not significant/ ☑ None</td>
<td>The TA will identify if there are any people who are covered by ADB’s Policy on Involuntary Resettlement, and if so, will prepare an indigenous people’s development plan as required.</td>
<td>☐ Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>☑ No</td>
</tr>
<tr>
<td>Other Risks and/or Vulnerabilities</td>
<td>☐ Significant/ ☑ Not significant/ ☐ None</td>
<td>The TA will consider social issues such as transmission of HIV/AIDS, trafficking, and road safety.</td>
<td>☐ Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>☑ No</td>
</tr>
</tbody>
</table>

HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, PPP = public-private partnership, TA = technical assistance.
# COST ESTIMATES AND FINANCING PLAN

($'000)

<table>
<thead>
<tr>
<th>Item</th>
<th>Foreign Exchange</th>
<th>Local Currency</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Asian Development Bank Financing</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Consultants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Remuneration and Per Diem</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. International Consultants</td>
<td>350.00</td>
<td>0.00</td>
<td>350.00</td>
</tr>
<tr>
<td>ii. Domestic Consultants</td>
<td>0.00</td>
<td>120.00</td>
<td>120.00</td>
</tr>
<tr>
<td>b. International and Local Travel</td>
<td>50.00</td>
<td>20.00</td>
<td>70.00</td>
</tr>
<tr>
<td>c. Reports and Communications</td>
<td>0.00</td>
<td>20.00</td>
<td>20.00</td>
</tr>
<tr>
<td>2. Equipment&lt;sup&gt;b&lt;/sup&gt;</td>
<td>25.00</td>
<td>10.00</td>
<td>35.00</td>
</tr>
<tr>
<td>3. Training, Seminars, and Conferences</td>
<td>0.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>4. Surveys</td>
<td>0.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>5. Miscellaneous Administration and Support Costs</td>
<td>0.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>6. Representative for Contract Negotiations</td>
<td>5.00</td>
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<tr>
<td>7. Contingencies</td>
<td>50.00</td>
<td>30.00</td>
<td>80.00</td>
</tr>
<tr>
<td><strong>Subtotal (A)</strong></td>
<td>480.00</td>
<td>320.00</td>
<td>800.00</td>
</tr>
<tr>
<td><strong>B. Government Financing</strong></td>
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<td></td>
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</tr>
<tr>
<td>1. Office Accommodation and Transport</td>
<td>0.00</td>
<td>60.00</td>
<td>60.00</td>
</tr>
<tr>
<td>2. Remuneration and Per Diem of Counterpart Staff</td>
<td>0.00</td>
<td>80.00</td>
<td>80.00</td>
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<tr>
<td>3. Others</td>
<td>0.00</td>
<td>60.00</td>
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<tr>
<td><strong>Subtotal (B)</strong></td>
<td>0.00</td>
<td>200.00</td>
<td>200.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>480.00</td>
<td>520.00</td>
<td>1,000.00</td>
</tr>
</tbody>
</table>

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

<sup>b</sup> Computers, printers, and photocopying machines will be the equipment purchased.

Source: Asian Development Bank estimates.
OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Introduction

1. The consultants for the Asian Development Bank (ADB) financed Padma Multipurpose Bridge project preparatory technical assistance (PPTA) will prepare a project for possible financing by ADB. The consultants will build on the feasibility studies already carried out. But where necessary to meet ADB standards and requirements, the consultants will carry out primary data collection and analysis as well. The consultants’ work should be in accordance with all relevant ADB guidelines and manuals including ADB’s Guidelines for the Economic Analysis of Projects, ADB’s Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects, ADB’s Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank, ADB’s Environmental Assessment Guidelines (2003); and take into account the Government of Bangladesh’s Environmental Preservation Rules (1997), ADB’s policy on indigenous peoples, ADB’s Policy on Involuntary Resettlement, ADB’s Operational Manual—Bank Policies on Poverty reduction (OM section C1/ BP) and Operational Manual—Bank Policy on Gender and Development (OM section C2/BP). The consultants are required to assist the ADB project team when the project team goes on processing missions, i.e., possible loan fact-finding mission, appraisal mission, and other review and consultation missions as appropriate. The Executing Agency for the study will be the Jamuna Multipurpose Bridge Authority (JOMBA) of the Government of Bangladesh.

B. Assessment of Institutional Capability for Engineering and Project Management
(6 person-months international and 6 person-months domestic consulting services)

2. The consultants’ services will include, but will not be limited to, these tasks:

(i) Review existing traffic data, traffic counts, origin-destination, axle load surveys, and traffic forecasts for the Project.

(ii) Review the engineering aspects (road, bridges, and river training works) in the feasibility study and preliminary design prepared by feasibility study consultants, and do surveys necessary to collect additional information and to verify the data and analysis.

(iii) Review the cost estimates for the proposed improvements for the project components.

(iv) Establish criteria for selecting bidders, and assist in evaluating proposals and selecting successful bidders, as required.

(v) Carry out an institutional assessment necessary for successful project implementation.

(vi) Review the contracting practices of JOMBA and recommend measures to ensure effective utilization of project funds in line with good governance principles.
C. Economic Analysis (4 person-months international and 4 person-months domestic)

3. The consultants’ services will include, but will not be limited to, these tasks:

(i) Review the feasibility study, economic analysis, sensitivity analysis, and traffic diversion, comparing the with- and without-project scenarios.

(ii) Prepare a socioeconomic and poverty profile of the area of influence, based on a review of existing studies and surveys of the representative road section.

(iii) Analyze the fiscal impacts of the project cost on the Government’s fiscal policies and sustainability, and the macroeconomic implications for the country.

(iv) Review the impacts of the investment in the Padma multipurpose bridge on other sectors.

(v) Analyze possible sources of revenue that the Government could use to finance its portion of the proposed construction cost.

(vi) Make a qualitative analysis of the impact of the proposed project in terms of reduction of unemployment and poverty, and specify the gender impacts.

(vii) Assess competitiveness in the road transport industry and the likelihood of vehicle cost savings being passed on to the general community.

(viii) Prepare a distribution analysis and poverty impact analysis of the quantified benefits of the proposed project.

D. Financial Analysis (3 person-months international and 3 person-months domestic)

4. The key activities to be undertaken in the financial analysis/financial management assessment component will include the following:

(i) Review project cost estimates and proposed drawdown schedules as provided by the engineers.

(ii) Review the proposed financing plan and assess the capacity of financiers to fulfill financing obligations to the Project.

(iii) Assess and prepare financial projections for the proposed project in accordance with the Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank.

(iv) Carry out a financial evaluation as well as sensitivity analysis over the Project construction and operation period by calculating the financial internal rate of return and comparing it with the weighted average cost of capital.

(v) Undertake a financial management assessment of JMB, which should include an assessment of the financial management control systems in place.

(vi) Collaborate with the project economist to ensure consistency of approach and assumptions between financial and economic analyses.
E. **Public–Private Partnership (PPP)** (3 person-months international and 3 person-months domestic)

5. The services will include, but will not be limited to, the following:
   
   (i) Review policy related to PPP and best-practice PPP schemes in the region and other countries, and confirm and specify financial modeling assumptions and implementable PPP options.
   
   (ii) Estimate the financial market for PPP financing terms and the interest of PPP finance providers (local debt and equity) and, based on the financial models, carry out financial and sensitivity analyses for PPP options of each project component.
   
   (iii) Finalize the recommendations regarding the PPP schemes in a workshop with the participation of JMBA and ADB.
   
   (iv) Review the existing concession agreement model developed by government agencies in Bangladesh and prepare the structure of bidding documents.
   
   (v) Establish the criteria for selecting bidders, and assist in evaluating proposals and selecting successful bidders, as required.
   
   (vi) Prepare and submit the final report and its summary to ADB and JMBA.

F. **Environmental Assessment** (6 person-months domestic)

6. The detailed work assignment that needs to be carried out by the consultant for this component includes, but is not limited to, these tasks:

   (i) Review environmental studies undertaken by the Government and other funding agencies and identify additional works to comply with ADB’s environmental safeguard policy.
   
   (ii) Based on environmental studies reports prepared by the Government and other funding agencies, undertake an exercise to confirm the scope of the environmental impact assessment (EIA) study to determine (a) environmental aspects that will be affected by the project; (b) which environmental data should be collected as data primer and which environmental data from secondary data will be adequate; and (c) the boundary of the project area and affected areas. The scope of the EIA study should be set by consulting relevant stakeholders that may include local communities.
   
   (iii) Gather necessary environmental data and describe systematically the environmental conditions of the study area, i.e., project areas and affected areas. For ecological conditions, collect primary data for water conditions as well as the bottom sediments of the Padma river.
   
   (iv) Since it was suspected that Ganges river dolphin and Gangetic *gharial* are found in the study area of the Japan International Cooperation Agency (JICA) environmental assessment study, the consultant must undertake rapid assessment to enable him/her to assess the habitat and roaming of these two endangered species.
   
   (v) Work closely with the project engineer to identify project activities that would generate environmental impacts.
(vi) Assess the environmental impacts of the proposed Project in detail by following the order of the project cycle (impact during preconstruction/associated with location, environmental impact during construction and operation). The assessment should cover direct and indirect impacts and main project activities as well as supporting activities such as construction of bunds to regulate river flow, if any; construction of approach roads, if any; construction for river training; dredging; and others.

(vii) Classify the significance of the identified impacts.

(viii) Prepare mitigating measures in detail for technical, social, and institutional aspects of all expected environmental impacts.

(ix) Work closely with the project economist of the PPTA team to provide detailed assessment of alternatives, and undertake environmental cost and benefits analysis.

(x) Prepare a detailed environmental management plan and a monitoring plan.

(xi) Undertake adequate consultation with local communities when preparing the EIA study. Two-step consultations are needed: (a) to determine the public's concerns; (b) to inform the public of the findings of the study.

(xii) Recommend institutional arrangements to implement the environmental management and the monitoring plan.

(xiii) Prepare concise EIA and summary EIA (SEIA) reports.

G. Poverty and Social Assessment (4 person-months domestic)

7. The main tasks of the social / resettlement specialist include, but are not limited to, the following:

(i) Review poverty / social analysis documents prepared by JICA / Government, and prepare the summary poverty reduction and social analysis (SPRSS) report, if required, through additional surveys. This will be in accordance with ADB’s Operational Manual—Bank Policies on Poverty reduction (OM section C1/ BP) and Operational Manual—Bank Policy on Gender and Development (OM section C2/BP).

(ii) Prepare gender plan to address (a) employment opportunities as a result of the project; (b) potential negative impacts including HIV/AIDS, occupational safety, and other social issues; (c) livelihood opportunities for women in construction activities—setting targets for the number of women to be employed and ensuring equal pay for equal work; (d) carry out gender analysis to assess the probability of HIV/AIDS and trafficking and suggest mitigating measures; and (e) develop appropriate performance indicators and monitoring mechanisms for the plan.

H. Resettlement and Indigenous People’s Issues (6 person-months domestic)

8. The TA will assist JMBA in complying with ADB’s policy on involuntary resettlement and ADB’s Policy on Indigenous People’s Issues. The detailed tasks include, but are not limited to, the following:

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1 Human immunodeficiency virus/acquired immunodeficiency syndrome.
(i) Review social impact assessment reports, resettlement policy framework, resettlement action plan, and land acquisition plan prepared under JICA / government funding.

(ii) Review the adequacy of the surveys, censuses, inventories completed under JICA / government funding and, if necessary, coordinate such additional activities as are necessary to meet ADB requirements.

(iii) Liaise and work closely with JMBA to finalize / prepare (through additional surveys) the land acquisition and resettlement plan (LARP).

(iv) Finalize / prepare the LARP in accordance with ADB’s involuntary resettlement policy, and applicable national and state laws; and then prepare a summary resettlement plan (RP) for inclusion in the report and recommendation to the President (RRP), taking into account comments from ADB and the Government. The LARP should include a record of consultations with affected persons (APs).

(v) As part of LARP preparation, identify relocation sites for APs (if not already identified by the Government) and confirm the availability of the site from the Government.

(vi) As part of LARP preparation, carry out land market survey to assess the replacement value of lost land and other assets.

(vii) Review consultation reports prepared under JICA / government funding and carry out additional consultations with APs and communities to validate / assess responses to the proposed project and ascertain the nature and scope of local participation in project planning and implementation. Coordinate and take part in consultations with relevant officials from the Government and other organizations.

(viii) Prepare and indigenous people’s development plan (IPDP), if required, in accordance with ADB’s policy on indigenous peoples and summary IPDP for inclusion in the RRP, taking into account comments from ADB and the Government.

(ix) Evaluate the capacity of JMBA to implement relevant social / resettlement action plans or mitigating measures (including a monitoring plan), identify any necessary training, and recommend institutional strengthening measures, if necessary.

(x) Coordinate and take part in workshops to discuss the LARP and IPDP (if required). Assist JMBA in translating of the summary RP and disclosure to APs, if required.