

**Bangladesh Railway, Ministry of Railways  
Government of Bangladesh**

## **Terms of Reference**

***Consultancy Services for Updating Environment, Social, Gender study &  
performing Climate Study of the Project***

***For***

***Construction of New Dual-Gauge Railway Line from Bogura to Sirajganj  
Project.***

**August 2026**

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## **A. BACKGROUND**

1. Bangladesh Railway (BR), although operating a network of more than 3,000 km, continues to face connectivity constraints in the north-western region. This is due to indirect and inefficient rail links that connect this region to Dhaka and the eastern parts of the country. One such example is the rail services from Bogura and other northern districts (e.g., Rangpur, Gaibandha, Lalmonirhat, Kurigram), as the trains have to take a detour via Santahar–Natore–Ishwardi while traveling towards Dhaka or the eastern corridors. This indirect alignment results in longer travel distances, extended journey times, higher operating costs, and reduced competitiveness of rail transport for both passenger and freight services.
2. The proposed project aims to address this structural bottleneck through the development of a strategic railway line directly linking Bogura with Sodanondopur Station in Sirajganj, and onward to the Jamuna Bridge West interface. The project will include the construction of a dual-gauge railway line of approximately 85 km of main line, together with 11 stations (including three existing stations to be transformed into junctions), bridges, culverts, and modern signalling and telecommunications systems. The corridor will bypass the existing circuitous alignment, shorten the rail distance between Bogura/ northern districts and Dhaka by more than 110 km, and cut travel time by approximately 3 to 4 hours for both passenger and freight services. Upon completion, this line is expected to improve BR's service attractiveness, operational efficiency, and reliability, enabling BR to better respond to growing demand and unlock suppressed passenger and freight flows from the north-western region.
3. The Development Project Proposal (DPP) of the project was approved in 2018, the project implementation unit (PIU) under BR is in place, and the feasibility study and detailed engineering design were completed in 2023 (with support from India Line of Credit - LoC). Land acquisition, covering approximately 900 acres, is at an advanced stage, with compensation payments started recently. The Government of Bangladesh has now sought financial support from the Asian Infrastructure Investment Bank (AIIB).
4. The key preparatory documents for the Project, including the feasibility study, detailed engineering design, Environmental Impact Assessment (EIA) Report, Social Impact Assessment Report (SIA), and associated technical documents, were prepared by BR PIU. While these documents provide a strong foundation for project implementation, they now require a comprehensive review to ensure technical consistency, completeness of the safeguard documents, and readiness for aligning with AIIB's policies, standards, and requirements. In particular, the documents need to be assessed and, where necessary, updated to reflect current implementation arrangements, timelines, and to ensure consistency across different components of the Project.
5. Preliminary reviews have identified certain gaps in the existing documentation, including the absence of a comprehensive climate risk assessment and the need to systematically integrate appropriate climate adaptation measures into the project design, as well as GHG accounting to demonstrate GHG reduction benefits. In addition, updates to the Social Impact Assessment (SIA), Resettlement Action Plan (RAP), and Gender Assessment are required, together with their proper integration into overall project implementation arrangements. A Stakeholder Engagement Plan (SEP) also needs to be prepared. From an



environmental perspective, preliminary gaps have also been identified, which will require a thorough review and gap analysis with a view to the completion of an AIIB-compliant E&S Impact Assessment. Based on the E&S review and climate assessment, a review and updating (if required) of the detailed engineering design (DED) will also be required to ensure the readiness of the project.

6. In this context, the proposed consultancy services will support the PIU in conducting a comprehensive due diligence, which will encompass reviewing and updating the preparatory documents, including DED and bid documents, strengthening E&S instruments, and ensuring full alignment with AIIB's policy and operational requirements. Furthermore, the assignment will also conduct the required climate risk assessment, GHG accounting, and provide preparation support as indicated in the scope of services below.

## **B. OBJECTIVES**

7. To review and update the safeguard assessment and corresponding documents, review the detailed engineering design that was prepared in 2023, considering the changes that may have occurred in key parameters, as well as by integrating the climate resilience and green construction that may not have been adequately covered in the original detailed design. The objective also encompasses providing some preparation support, which will cover the review of DED, review of corresponding BoQ items, and economic analysis.

## **C. SCOPE OF SERVICES**

8. The scopes of the service are to:

- Conduct an Environment and Social Due Diligence (ESDD) by reviewing, identifying the gaps, and updating the EIA, SIA, and RAP that were prepared in 2023. Prepare any additional E&S safeguards documents or instruments in accordance with the applicable laws, rules, and regulations of the GoB and AIIB.
- Conduct a comprehensive climate risk assessment of the project and GHG accounting
- Review and update the detailed engineering design to ensure consistency with the above update.
- Review the Detailed Engineering design.
- Review and update the BoQ items and update the bid documents (as necessary).
- Conduct a review and update the economic analysis.
- Provide other preparation support.
- Arrange technical abroad 02 trainings of 07 participants of PIU, BR and Concern Ministries in Developed Countries on Climate / Project Management/Procurement.
- Arrange Local 03 Workshops (60 participants) in suitable venues with Stakeholders on Resettlement/Environment/Social & Gender.
- Provide Professional certificate training on Carbon Crediting in Renowned Training Institute (Local or Abroad) of 02 PIU Officials.

#### **D. Detailed Tasks of the Assignment**

##### **Task 1: Social Due Diligence**

The following tasks, listed based on review of LAP, SIA & RAP, should be specifically covered as a part of Social Due Diligence:

- 1.1 Identify modifications to be made in the SIA and RAP necessitated due to changes in project funding arrangements, designs, social impacts and any other local situations that occurred during the past more than three years after the census, property valuation and other surveys were carried out during September - December, 2022 and after these documents were prepared in March, 2023, and ensure that these are updated accordingly.
- 1.2 Carry out a review of the social aspects of AIIB's Environmental and Social Framework (ESF), identify its various provisions applicable to the project; carry out policy gap analysis by comparing AIIB's social ESF requirements with relevant national policies, laws, regulations, etc., identify gaps and indicate specific measures to be adopted to fill such gaps.
- 1.3 Assess the current status of RAP implementation in general, and in particular, the status of land acquisition and transfer (for Govt. land), possession, dismantling of affected structures and other assets, status of assessment of losses, determination of compensation and other benefits as per the Entitlement Matrix, and release of payments and other benefits to concerned parties, to confirm that compensation is paid prior to displacement.
- 1.4 Specifically evaluate mechanisms/ procedures proposed in the RAP for determination of Replacement Value, including that used in the assessment carried out for RAP itself and that to be assessed in future by Property Valuation Advisory Committee (PVAC), robustness of its methodology and independence of assessment through market surveys and studies etc., to ensure that all losses of land and various assets are compensated on the basis of the principle of Replacement Cost.
- 1.5 Critically examine various Loss Items in the Entitlement Matrix for coverage of all affected households in relevant categories as identified in Census Survey in general, and with particular focus on households considered vulnerable due to poverty, employees/ wage earners below the Poverty Line or otherwise vulnerable etc. for discrepancies, if any, and evaluate adequacy of amounts of various types of Allowances and Cash Grants etc. with ceilings specified, that are largely based on income and other losses for specific periods, as against the availability of such details from the Census Survey.
- 1.6 Formulate a detailed Income and Livelihood Restoration Programme (ILRP).
- 1.7 Formulate a detailed Stakeholder Engagement Plan (SEP).
- 1.8 Conduct a gender study around the project influence area. Conduct a gender-differentiated impact assessment on project-affected people in areas such as inclusion and participation in project activities, access to railway and related infrastructure, livelihood impact and opportunities, travel time, project benefits such as employment, gender-based violence risks, especially with potential labour influx, etc. Categorize and organize the gender-disaggregated data with other socio-economic data, including occupation, education, family planning, social contribution, annual income, affected household by sex, age, physical ability, marital status, etc.

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- 1.9 Prepare a Gender and Social Inclusion Plan (GSIP) to integrate gender and social measures in the project design following AIIB guideline. The plan will likewise ensure capacity building among relevant line agencies and an awareness program for the project's broad stakeholders. Ensure the identified gender and social inclusion measures relevant to the project design are integrated.
- 1.10 Review the existing grievance redressal mechanism and prepare/ update a robust mechanism applicable to this project.
- 1.11 Assess the capacity building needs of all personnel likely to work for RAP implementation and prepare a structured programme for this purpose.
- 1.12 Assess all aspects of RAP implementation and project implementation already carried out against the social aspects of AIIB's ESF, identify existing compliance gaps, and prepare a Corrective Action Plan to ensure compliance in a time-bound manner.
- 1.13 Prepare an Environmental and Social Due Diligence Report (ESDDR) covering all aspects listed in the ToR.

#### **Task 2: Environmental Review**

- 2.1 Review the existing environmental impact assessment against the AIIB ESF and formulate a gap analysis.
- 2.2 Review the existing baseline data collected and determine if it is still representative of the environment; critically assess if the coverage of sampling points along the alignment is sufficient for adequate impact assessment.
- 2.3 Critically assess the ecological studies undertaken to date and determine further assessments needed (if any) following AIIB guidelines.
- 2.4 Upon agreement of the gap analysis, update the applicable E&S instruments (ESIA, ESMF, and EMP) of the project using the latest environmental and social survey data and investigation results obtained under this assignment, if any, as per the AIIB ESF. Prepare further management plans as needed (i.e., Noise Management Plan, Biodiversity Management Plan, Emergency Plans, Health and Safety Plans, etc.) and guided by AIIB and BR.
- 2.5 Prepare additional reports where necessary according to the updated/new detailed engineering design. All such study reports shall comply with the Government's environmental regulations and policies, as well as the requirements of AIIB's ESF.
- 2.6 Assess the implementing agencies' capacity to implement the E&S instruments and identify any capacity-building needs.

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### Task 3: Climate Risk Assessment and GHG accounting

- 3.1 **Prepare a climate risk and adaptation assessment (CRA).** The assessment must identify the key climate risks in the project area based on historic and projected climate data under different climate scenarios. Based on the risks identified, technically feasible and cost-effective adaptation measures shall be recommended and incorporated in the project's detailed design to address these risks. The adaptation measures must be clearly presented along with cost estimates for the incremental costs associated with the respective measures.
- 3.2 **GHG emission calculations for the project.** This should include both gross emissions and relative emissions by following internationally recognized principles and methodologies, in coordination with the AIB project team.
- 3.3 **Carbon Market Feasibility Assessment.** This should assess the Project's potential to generate carbon credits under internationally recognized carbon market mechanisms, including the Voluntary Carbon Market and Article 6 of the Paris Agreement. The assessment shall:
- identify potential emission reduction sources associated with the Project, including modal shift from road to rail, improved railway operational efficiency, and any other relevant mitigation measures;
  - review applicable carbon crediting methodologies and assess their suitability for the Project;
  - evaluate the Project against key eligibility requirements, including additionality, baseline determination, monitoring feasibility, and permanence (where applicable);
  - estimate the indicative volume of potentially creditable emission reductions and associated carbon revenue under different market scenarios;
  - identify data gaps, monitoring requirements, institutional arrangements, and implementation costs required for future carbon credit development; and
  - provide recommendations on whether the Project should pursue carbon credit registration and identify the preferred pathway, if appropriate.

### Task 4: Review/ Update the Detailed Engineering Design (DED)

- 4.1 Review the proposed railway alignment, horizontal and vertical geometry, formation level, gradients, curvature, transition arrangements, and track centers to confirm that the design is technically appropriate for the intended operational requirements, future traffic demand, axle load, train length, and speed standards, and identify all sections where the proposed design parameters are constrained or require modification.
- 4.2 Analyse the survey data, geotechnical information, hydrological data, traffic data, land plans, utility information, and other field data collected under the assignment, and validate the DED accordingly in consultation with BR, while also assessing the appropriateness of the adopted engineering standards, technical assumptions, and design criteria.
- 4.3 Review the design of permanent way and track components, including rail section, sleepers, ballast, sub-ballast, formation treatment, embankment protection, turnouts, crossovers, loops, sidings, yards, and special track works, and update the design as necessary to ensure safe, efficient, and durable rail operations throughout the project corridor.



- 4.4 Review the design of embankments, cut sections, retaining/protective works, slope stabilization measures, erosion control measures, and all earthwork-related structures, taking into account topographic, geotechnical, flood, drainage, and climate risk information, and update the design where necessary to ensure structural stability, resilience, and safe railway operation.
- 4.5 Review the drainage design and all hydraulic structures, including bridges, minor bridges, culverts, vents, side drains, cross-drainage structures, waterway adequacy, scour protection, and related works, and update the design as required to ensure adequate drainage performance, flood resilience, and protection of railway assets and surrounding settlements/agricultural areas.
- 4.6 Review the design of major and minor structures associated with the railway system, including bridges, viaducts, ROBs, RUBs, station buildings, platforms, foot overbridges, approach roads, passenger circulation facilities, yards, depots, maintenance areas, and utility/service buildings, and update (if required) in consultation with BR.
- 4.7 Review the signalling, interlocking, telecommunications, train control, block system, optical fibre/communication backbone, station control arrangements, and interface requirements with existing railway systems, ensuring that the proposed design supports safe and efficient train operation under current and future operating scenarios.
- 4.8 Review all railway crossings, road overpasses, road underpasses, and particularly all proposed or retained level crossings, and assess their adequacy from the perspective of railway safety, road safety, traffic capacity, local accessibility, and long-term operational risk. The Consultant shall specifically:
- Prepare/ update a complete inventory and classification of all existing and proposed crossing locations;
  - Reassess whether each crossing should be eliminated, consolidated, grade-separated, relocated, or retained;
  - Recheck and recommend if it is possible to minimize the number of level crossings to the extent feasible through service roads, diversion roads, closure of redundant crossings, and provision of alternative access;
  - review the technical appropriateness of proposed overpass/underpass solutions at high-risk or high-traffic locations;
  - for retained level crossings, review and update the design of warning systems, barriers/gates, interlocking arrangements, sight distance, road approach geometry, road surface across tracks, signage, markings, rumble strips, lighting, pedestrian control, fencing, and channelization measures;
  - ensure that all retained level crossings incorporate adequate safety provisions acceptable to BR and relevant road authorities;
  - recommend specific operational, engineering, and institutional measures to reduce accident risk at rail-road interfaces.
- 4.9 Review the adequacy of provisions for safety at interfaces with local roads, growth centres, markets/ local bazars, settlements, schools, mosques, and other populated areas, including the need for pedestrian crossings, foot overbridges, cattle crossings, boundary walls/fencing,

access control, trespass prevention, and community safety measures, and update the design accordingly.

- 4.10 Review construction staging, traffic/interface management during construction, utility shifting requirements, temporary works, access arrangements, and construction methodology assumptions, and ensure that the design package is sufficiently detailed and practical for implementation without undue disruption to railway operations, road traffic, communities, and adjacent land uses.
- 4.11 Review the proposed design from the conducted climate resilience study and updated E&S documents perspective, and update the design (if required) to ensure alignment with those studies.
- 4.12 Prepare a consolidated review and update report on the DED, clearly identifying: (a) gaps and deficiencies in the existing design; (b) sections or components requiring revision; (c) updated design criteria and assumptions; (d) recommended measures for level crossing safety and grade separation.
- 4.13 Update all drawings, design reports, structural calculations, technical specifications, and cost estimates to reflect the revised and approved DED under this assignment, ensuring full internal consistency among all engineering documents.
- 4.14 Make sure the design is sufficient for the contractor to initiate the construction drawing and undertake subsequent construction activities.

**Note:** The Consultant shall undertake a comprehensive review of the existing DED to identify gaps, deficiencies, inconsistencies, and areas requiring modification. Based on this review, the Consultant shall clearly classify the required interventions into:

- (i) minor updates (refinements, corrections, adjustments), and
- (ii) major updates (substantial redesign, additional investigations, or changes in design parameters).

These classifications will have to be agreed upon by clients. The Consultant shall proceed with necessary design updates for minor modifications within the scope of this assignment. For any major design changes, the Consultant shall submit a justification note outlining the scope, level of effort, and implications (technical, cost, and schedule) for the Client's review and approval prior to undertaking such works.

The Consultant shall include in the financial proposal a clearly identified allocation for design review and a reasonable provision for potential major design updates. Any utilization beyond the agreed level shall require prior written approval from the Client.

#### **Task 5: Review/ Update the existing BOQ and Estimation**

- 5.1 Following the approved/ updated detailed drawings, specifications, and related documents, review the existing BOQs and identify omissions, duplication, or inconsistencies with the approved drawings, following standard railway measurement practices.
- 5.2 Update item-wise BOQs for all components of the works. The BOQs shall be arranged by work category and contract package and prepared in editable Excel format.



- 5.3 Update cost estimates using the latest applicable Government-approved Schedule of Rates (SoR) for civil, railway, and electrical works. The relevant SoR item numbers, descriptions, and year/version shall be indicated, and rate analysis shall be carried out in accordance with approved SoR procedures where required.
- 5.4 For items not covered under the SoR, carry out market rate analysis, particularly for specialized railway materials, imported items, and signaling and telecommunication equipment, supported by recent contract rates, supplier quotations, and justified rate build-ups.
- 5.5 Prepare a detailed engineer's estimate including direct construction costs, equipment and installation costs, applicable taxes, duties, VAT, and contingencies as per client instructions.
- 5.6 Prepare a cost comparison and variance statement comparing the updated estimates with previous BOQs, estimates, or RDPP/DPP provisions, clearly explaining major variations.
- 5.7 Provide necessary support to the Client during review and approval, including participation in meetings, incorporation of comments, revision of BOQs and estimates, and submission of clarification notes and supporting calculation sheets, if required.

**Task 6: Update the Bid Documents**

- 6.1 Update the existing Bid Documents of the AIIB-financed packages, keeping them aligned with AIIB Standard Procurement Documents.
- 6.2 Incorporate any changes/ modifications in the Bid Documents suggested by AIIB/ updated detailed engineering design.

**Task 7: Updating the Economic Analysis**

- 7.1 Review and validate prior economic analysis and the underlying evidence base, including traffic surveys, demand forecasts, revenue yield, rail operations analysis, capital, operating, and maintenance cost assumptions. This should also include scrutinizing prior parameters used in the analysis in line with global best practice.
- 7.2 Conduct a gap analysis of the evidence base and develop a methodology for updating the economic analysis, including identifying additional sources of evidence from a combination of public sources and working closely with Bangladesh Railway/ other data sources.
- 7.3 Using this methodology, update prior demand forecasts and economic analysis to capture a range of economic benefits, economic costs, and calculate the Economic Internal Rate of Return. The benefits that should be captured include:
  - Passenger travel time savings
  - Vehicle operating cost savings (from modal shift)
  - Freight operating cost savings
  - Accident reductions (from modal shift)
  - Environmental benefits, including CO<sub>2</sub> reduction and air quality improvement benefits (including nitrogen dioxide and particulate matter)
  - Any other relevant benefits
- 7.4 Conduct sensitivity analysis to test the robustness of the results in a range of scenarios.
- 7.5 Summarize their analysis in a detailed report setting out the methodology, calculations, data sources, results, and sensitivities.

## Task 8: Other Preparation Support

### **8a. Preparation of Project Implementation Manual:**

- 8.1 Review the institutional setup to determine the adequacy of, among others, existing organization, staffing, financial resources, etc., for project implementation, and share recommendations for implementation arrangements based on the stakeholder assessment.
- 8.2 Describe the institutional setup and procedures that the BR shall apply for the implementation and reporting of the loan.
- 8.3 Describe the BR's and other Government agencies' responsibilities; the monitoring and reporting procedures; the monitoring framework; the eligible expenditures and disbursement of funds procedures; the procurement and contract management procedures; the environmental and social safeguard procedures, including grievance procedures; and other requirements and procedures that are necessary for the successful implementation of the loan.

### **8b. Preparation of Financial Management Manual:**

- 8.4 Review and describe the institutional setup and procedures that the BR shall apply for the management of the funds from the loan.
- 8.5 Describe the applicable accounting principles and policies; the accounting and financial system to be used and the applicable rules and procedures; the procedures for preparing and updating budgets and budget controls; the procedures for managing cash and bank flows; the procedures for the management of payments; the financial audit procedures; the procedures for the financial reporting; and other financial requirements and procedures that are needed for the successful implementation of the loan.

### **8c. Operation Plan/ Business Plan**

- 8.6 Engage with BR, review the existing train operation, and develop a comprehensive train operation plan, including passenger and freight services, service frequency, headways, timetable planning, and capacity utilization for the new line.
- 8.7 Define operational scenarios for peak/off-peak, seasonal variations, and future demand growth;
- 8.8 Develop yard and station operation plans, including crossing, overtaking, and shunting arrangements.
- 8.9 Define/ refer to the operational framework for signaling, interlocking, and train control systems and develop coordination mechanisms between stations, control centers, and adjacent railway sections.
- 8.10 Develop/ refer to the operational procedures for stations, including passenger handling, ticketing integration, platform management, accessibility, and safety;
- 8.11 Develop a detailed Level Crossing Operation and Safety Plan, including: classification and prioritization of crossings; staffing requirements and automation strategy; gate operation procedures and interlocking requirements; coordination mechanism with road authorities; traffic management during peak hours; and enforcement mechanisms and public awareness programs.



### ***Maintenance Plan***

Describe BR's existing practice on maintenance protocols, strategies, financial models, and stakeholder responsibilities for both the short and long term.

Develop a maintenance plan including the track geometry and alignment; ballast and formation; embankments and slopes; drainage systems; bridges, culverts, and structures; and indicative sources of financing.

Prepare maintenance plans for signaling, interlocking, telecom, power supply, and other systems and define inspection cycles, testing procedures, and fault response mechanisms.

Develop specific maintenance protocols for level crossings, including: inspection and servicing of gates/barriers; signaling and warning systems; road surface maintenance at crossings; visibility and signage upkeep; coordination with local authorities for road maintenance.

Prepare detailed maintenance schedules (daily, weekly, monthly, annual); define manpower requirements, skill sets, training needs, and institutional responsibilities; and estimate equipment, machinery, and spare parts requirements.

### ***Capacity Building of the PIU***

The Consulting firm shall incorporate knowledge transfer and capacity-building components within the assignment, including international exposure/visit to best practices in railway systems, particularly in procurement, signaling, operations through appropriate means as agreed with the Client.

## E. Qualification Requirements for Consulting Firms

Table 1: Qualification requirements for consulting firms

| Criteria/<br>Sub-criteria                                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ratings or Pass/Fail Criteria                                                                                                                                                                                                                                                                                     |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|-----------|----|-------------------------|----|------------------------|----|-----------------------|---|----------|---|
| 1. Eligibility                                              | 1) Not debarred by AIIB<br>( <a href="https://www.aiib.org/en/about-aiib/who-we-are/debarment-list/index.html">https://www.aiib.org/en/about-aiib/who-we-are/debarment-list/index.html</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ▪ Pass/Fail                                                                                                                                                                                                                                                                                                       |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
|                                                             | 2) No conflict of interest.<br>Please refer to AIIB Directive on Procurement Instructions to Recipients:<br><a href="https://www.aiib.org/en/policies-strategies/download/operational-directive/AIIB-Directive-on-Procurement-Instructions-for-Recipients-July-26-2024.pdf">https://www.aiib.org/en/policies-strategies/download/operational-directive/AIIB-Directive-on-Procurement-Instructions-for-Recipients-July-26-2024.pdf</a>                                                                                                                                                                                                                                                                                                                                                    | ▪ Pass/Fail                                                                                                                                                                                                                                                                                                       |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
|                                                             | 1) <b>Sector Experience:</b> The firm, or the lead firm of a Joint Venture, shall have a proven record of successfully completing or being substantially engaged in relevant assignments in the transport infrastructure sector within the past ten years (2016-2026). The firm or Joint Venture shall demonstrate experience covering the following areas:<br>(i) Preparation, review or updating of feasibility studies, detailed engineering design, or technical studies for transport infrastructure projects;<br>(ii) Preparation, review, updating or due diligence of environmental and social safeguard documents, including ESIA/EIA, SIA, RAP, LAP or equivalent instruments;<br>(iii) Climate risk assessment, GHG accounting, and transport economic or financial analysis. | ▪ Pass/Fail                                                                                                                                                                                                                                                                                                       |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| 1. Age of Consulting Firm<br>Maximum 20 scores              | The time span of experience as a consulting firm from the date of registration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <table><tr><th>Age of Firm</th><th>Score</th></tr><tr><td>&gt;15 years</td><td>20</td></tr><tr><td>&gt;10 years and ≤15 years</td><td>16</td></tr><tr><td>&gt;5 years and ≤10 years</td><td>12</td></tr><tr><td>&gt;0 years and ≤5 years</td><td>2</td></tr><tr><td>0 years</td><td>0</td></tr></table>           | Age of Firm            | Score | >15 years | 20 | >10 years and ≤15 years | 16 | >5 years and ≤10 years | 12 | >0 years and ≤5 years | 2 | 0 years  | 0 |
| Age of Firm                                                 | Score                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| >15 years                                                   | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| >10 years and ≤15 years                                     | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| >5 years and ≤10 years                                      | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| >0 years and ≤5 years                                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| 0 years                                                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| 2. Core business and year in business-<br>Maximum 20 scores | Be a firm, or lead firm of a JV, with experience in multidisciplinary transport infrastructure project preparation. Have at least 10 years demonstrated experience in feasibility/design review, environmental and social safeguards, procurement support, climate risk assessment, GHG accounting, BOQ/cost review, bid document preparation, and/or economic analysis.                                                                                                                                                                                                                                                                                                                                                                                                                 | <table><tr><th>Years of Core Business</th><th>Score</th></tr><tr><td>&gt;10 years</td><td>20</td></tr><tr><td>&gt;7 years and ≤10 years</td><td>16</td></tr><tr><td>&gt;4 years and ≤7 years</td><td>12</td></tr><tr><td>&gt;1 years and ≤4 years</td><td>8</td></tr><tr><td>≤1 years</td><td>0</td></tr></table> | Years of Core Business | Score | >10 years | 20 | >7 years and ≤10 years  | 16 | >4 years and ≤7 years  | 12 | >1 years and ≤4 years | 8 | ≤1 years | 0 |
| Years of Core Business                                      | Score                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| >10 years                                                   | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| >7 years and ≤10 years                                      | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| >4 years and ≤7 years                                       | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| >1 years and ≤4 years                                       | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |
| ≤1 years                                                    | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                   |                        |       |           |    |                         |    |                        |    |                       |   |          |   |



|                                                 |                                                                                                                                                                           |                                                |              |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------|
| 3. Firm's Capacity-<br>Maximum<br>30 scores     | Be a firm, or a JV, with sound technical, managerial, quality assurance, coordination, and reporting arrangements to deliver the assignment within the assignment period. | <b>Contracts delivered in Last 10 Years</b>    | <b>Score</b> |
|                                                 |                                                                                                                                                                           | ≥5 Nos.                                        | 30           |
|                                                 |                                                                                                                                                                           | >3 Nos. and ≤5 Nos.                            | 24           |
|                                                 |                                                                                                                                                                           | >1 No. and ≤5 Nos.                             | 18           |
|                                                 |                                                                                                                                                                           | 1 No.                                          | 6            |
|                                                 |                                                                                                                                                                           | 0 No.                                          | 0            |
| 4. Specific Experience-<br>Maximum<br>30 scores | The firm, or the lead firm of a JV, should have completed at least <b>ONE</b> MDB financed contract of similar nature and value in the past ten years (2016-2026).        | <b>Contracts delivered with MDB Experience</b> | <b>Score</b> |
|                                                 |                                                                                                                                                                           | ≥4 Nos.                                        | 30           |
|                                                 |                                                                                                                                                                           | 3 Nos.                                         | 27           |
|                                                 |                                                                                                                                                                           | 2 Nos.                                         | 24           |
|                                                 |                                                                                                                                                                           | 1 No.                                          | 18           |
|                                                 |                                                                                                                                                                           | 0 No.                                          | 0            |

#### F. Consultant's Inputs

9. The assignment will be carried out over a period of 6 (Six) months from the effective date of the contract. The assignment will be implemented by the selected consulting firm. The Consultant is responsible for proposing a team with the capability to undertake the assignment. 42 man-months of input by the Consultants' Key and Non-Key Experts will be required to carry out the detailed tasks under this assignment as described in Section D of the TOR and to meet the output and reporting requirements as described in Section F of the TOR.
10. This estimation is indicative only, and the Consultant shall consider it as a bare minimum. The Consultant is required to organize and commit resources to suit the planned workload and program, and the Consultant shall propose the amount of effort and alternative arrangements in their technical proposal. The Consultant is expected to apply their experience to propose the most cost-effective allocation of personnel to achieve the quality and timeliness of outputs.

**Table 2: Team Composition and Indicative Level of Efforts**

| No.                           | Position                                            | Indicative Man-months |
|-------------------------------|-----------------------------------------------------|-----------------------|
| K-1                           | Team Leader / Senior Railway Engineer               | 6                     |
| K-2                           | Senior Environmental Specialist                     | 3.5                   |
| K-3                           | Senior Social Development / Resettlement Specialist | 3.5                   |
| K-4                           | Senior Railway Track Engineer                       | 3                     |
| K-5                           | Bridge & Structure Engineer                         | 3                     |
| NK-1                          | Senior Climate Change & GHG Specialist              | 2.5                   |
| NK-2                          | Senior Signaling & Tele-communications Specialist   | 2                     |
| NK-3                          | Geotechnical Engineer                               | 3                     |
| NK-4                          | Transport Economist                                 | 2.5                   |
| NK-5                          | Railway Operation & Maintenance Expert              | 2                     |
| NK-6                          | Rail / Road Safety Specialist                       | 3                     |
| NK-7                          | Procurement & Contract Management Specialist        | 4                     |
| NK-8                          | Gender & Social Inclusion Specialist                | 3                     |
| NK-9                          | Cost Estimation / BOQ Specialist                    | 6                     |
| NK-10                         | Junior Environmental Specialist                     | 6                     |
| <b>Total Estimated Inputs</b> |                                                     | <b>47.00</b>          |

The required team of experts and their requirements are summarized in the table below.

**Table 3: Qualification Requirements of Proposed Key Experts**

| No. | Expert Title                    | Minimum Qualification & Experience                                                                                                                                                                                                                                                                                                                                                                                                                      | Key Job Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K-1 | Team Leader                     | <ul style="list-style-type: none"> <li>• BSc in Civil or Railway Engineering or any relevant field (MSc preferred)</li> <li>• Minimum 15 years of professional experience in Transport infrastructure projects</li> <li>• At least 10 years in detailed engineering design, review, and supervision of railway projects</li> <li>• Proven experience as Team Leader/ Deputy Team Leader on MDB-funded projects (AIIB/WB/ADB)</li> </ul>                 | <ul style="list-style-type: none"> <li>▪ Lead, coordinate, and manage the entire consultancy assignment, including Tasks 1 through 8, ensuring compliance with the ToR, BR standards, and AIIB policies and requirements.</li> <li>▪ Serve as the primary focal point and official interface with BR, AIIB, and other relevant stakeholders on all technical, managerial, and coordination matters.</li> <li>▪ Actively coordinate with experts to ensure timely delivery of all tasks.</li> <li>▪ Provide continuous technical leadership and direct hands-on inputs for Task 4 (Review and Update of DED)</li> <li>▪ Lead and oversee the integration of climate resilience measures into the DED.</li> <li>▪ Provide continuous oversight and direct involvement in Task 5 and Task 6.</li> <li>▪ Actively coordinate with all experts and ensure effective cross-disciplinary integration of environmental, social, climate, safety, and engineering inputs.</li> <li>▪ Review, consolidate, and approve all draft and final deliverables prior to submission, ensuring technical accuracy, internal consistency, and readiness for Client and financier review.</li> <li>▪ Manage task sequencing, internal quality control, and timelines, ensuring timely delivery of all interim and final outputs within the 6-month assignment period.</li> <li>▪ Provide strategic guidance, mentoring, and knowledge transfer to all experts and support capacity-building activities for the BR PIU, particularly on climate-resilient and sustainable railway design and implementation.</li> </ul> |
| K-2 | Senior Environmental Specialist | <ul style="list-style-type: none"> <li>• Masters' degree in environmental engineering, environmental science or similar related fields</li> <li>• Min. 15 years of professional experiences</li> <li>• Min. 5 years of experiences in the preparation of environmental impact assessment and due diligence for infrastructure projects funded by multi-lateral funding agencies (i.e. World Bank, Asian Development Bank) by following their</li> </ul> | <ul style="list-style-type: none"> <li>▪ Lead the overall activities as delineated under Task 2 i.e., environmental due diligence including the comprehensive gap analysis, validating existing environmental baseline data and determining the need for updates or supplementary surveys.</li> <li>▪ Coordinate with Social Expert and other experts, ensure timely delivery of Task 2 activities and instruments.</li> <li>▪ Coordinate with engineering experts to ensure requirements are translated into physical design provisions wherever applicable</li> <li>▪ Verify that all environmental mitigation measures are adequately captured in BOQs, cost estimates, and technical specifications.</li> <li>▪ Review environmental clauses in bid documents and contracts to ensure enforceability during construction and operation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



| No. | Expert Title                                        | Minimum Qualification & Experience                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Key Job Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K-3 | Senior Social Development / Resettlement Specialist | <p>environmental policies.</p> <ul style="list-style-type: none"> <li>• Masters' degree in social science or equivalent related subject</li> <li>• Min. 15 years of professional experiences</li> <li>• Min. 5 years experience in preparation of social impact assessment and resettlement action plan reports or in carrying out social due diligence for projects funded by multi-lateral funding agencies (WB, ADB, etc) by following their Social Safeguard policies</li> </ul>                                                    | <ul style="list-style-type: none"> <li>▪ Support the PIU in obtaining necessary approval aligning with national laws.</li> <li>▪ Lead social due diligence and conduct a detailed gap analysis of the existing SIA and RAP against AIIB ESF and national requirements following the Task 1.</li> <li>▪ Lead the activities delineated under Task 1 and in coordination with Environmental Expert and other experts, ensure timely delivery of those activities and instruments.</li> <li>▪ Coordinate with engineering experts to ensure safeguard requirements are translated into physical design provisions wherever applicable</li> <li>▪ Conduct site visit, as deemed necessary.</li> <li>▪ Verify that all social mitigation measures are adequately captured in BOQs, cost estimates, and technical specifications.</li> <li>▪ Support integration of social requirements into bid documents, including GRM, labor standards, and contractor obligations.</li> </ul>                                                    |
| K-4 | Senior Railway Track Engineer                       | <ul style="list-style-type: none"> <li>• BSc in Civil or Railway Engineering (MSc preferred)</li> <li>• Minimum 12 years of professional experience in railway or major linear infrastructure projects</li> <li>• At least 8 years of experience covering both: <ul style="list-style-type: none"> <li>✓ Track &amp; permanent way design and</li> <li>✓ Railway civil structures (bridges, culverts, stations, ROBs/RUBs)</li> </ul> </li> <li>• Demonstrated experience in railway DED preparation, review, or supervision</li> </ul> | <ul style="list-style-type: none"> <li>▪ Review and update the DED following the Task 4.</li> <li>▪ Coordinate closely with other relevant specialists to address embankment stability, settlement, slope protection, and to ensure waterway adequacy, drainage performance, flood resilience, and scour protection.</li> <li>▪ Integrate climate resilience measures into track designs, including freeboard, drainage capacity, embankment protection, and material selection.</li> <li>▪ Update drawings, design reports, calculations, and technical specifications for civil and permanent way components.</li> <li>▪ Support preparation and updating of BOQs and cost estimates related to civil works and permanent way.</li> <li>▪ Coordinate with the Signaling &amp; Telecommunications Specialist to ensure compatibility at interfaces affecting track geometry, crossings, and stations.</li> <li>▪ Support preparation of operation and maintenance considerations related to civil and track assets.</li> </ul> |
| K-5 | Bridge & Structure Engineer                         | <ul style="list-style-type: none"> <li>• Bachelor's degree in Civil Engineering (Master's degree in Structural Engineering preferred)</li> <li>• Minimum 10 years of professional experience in structural/bridge engineering for large infrastructure projects</li> <li>• At least 5 years experience in design review, structural quality control, or</li> </ul>                                                                                                                                                                      | <ul style="list-style-type: none"> <li>▪ Review and verify structural designs of major and minor bridges, ROBs, RUBs, culverts, viaducts, and associated structural components included in the updated DED.</li> <li>▪ Review structural calculations, design assumptions, load combinations, and safety factors for compliance with BR standards and international good practice.</li> <li>▪ Support the Team Leader and other Specialists in ensuring structural design consistency including structural resilience to flooding, scour, seismic effects, and climate-related stresses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                             |

| No. | Expert Title | Minimum Qualification & Experience                                                                                                                                                                                                                                                                                                                                     | Key Job Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |              | <p>supervision of bridges and major concrete/steel structures</p> <ul style="list-style-type: none"> <li>• Proven experience in railway bridges, ROB/RUBs, viaducts, or similar linear infrastructure structures</li> <li>• Demonstrated familiarity with structural design standards, construction quality control procedures, and material specifications</li> </ul> | <ul style="list-style-type: none"> <li>▪ Review structural drawings, reinforcement details, material specifications, and workmanship requirements.</li> <li>▪ Support preparation and review of quality control and quality assurance (QA/QC) requirements for structural works to be included in technical specifications and bid documents.</li> <li>▪ Verify that structural BOQ items correctly reflect the approved designs, specifications, and construction methodology.</li> <li>▪ Provide inputs to inspection, testing, and acceptance criteria for structural works.</li> <li>▪ Support preparation of maintenance considerations related to bridges and major structures.</li> </ul> |

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**Table 4: Qualification Requirements of Proposed Non-Key Experts**

| No.  | Expert Title                           | Minimum Qualification & Experience                                                                                                                                                                                                                                                                                                                                                      | Key Job Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NK-1 | Senior Climate Change & GHG Specialist | <ul style="list-style-type: none"> <li>• Masters' degree in Meteorology, climate sciences, environmental engineering, or related fields</li> <li>• Min 12 years of professional experience</li> <li>• Min 3 years in conducting climate change assessments, such as climate vulnerability and risk assessments and project-level GHG accounting, for infrastructure projects</li> </ul> | <ul style="list-style-type: none"> <li>▪ Conduct a comprehensive Climate Risk Assessment as instructed in Task 3 and following AIIB instructions.</li> <li>▪ Develop technically feasible and cost-effective climate adaptation measures in close coordination with engineering experts.</li> <li>▪ Ensure that agreed climate adaptation measures are fully integrated into the updated DED, drawings, and design reports.</li> <li>▪ Estimate incremental costs associated with climate adaptation measures and ensure their inclusion in BOQs and cost estimates.</li> <li>▪ Conduct project-level GHG emissions accounting, including gross and relative emissions, following internationally recognized methodologies.</li> <li>▪ Clearly document assumptions, boundaries, methodologies, and scenarios used in GHG calculations.</li> <li>▪ Support incorporation of climate resilience and green construction requirements into bid documents and technical specifications.</li> <li>▪ Assess the Project's eligibility for carbon credit generation under internationally recognized carbon market mechanisms.</li> <li>▪ Review applicable carbon crediting methodologies and develop a preliminary baseline and monitoring approach.</li> <li>▪ Estimate the indicative carbon credit potential and associated carbon revenue.</li> <li>▪ Advise the Client on institutional arrangements, monitoring requirements, and next steps for potential carbon project development.</li> </ul> |

| No.  | Expert Title                                     | Minimum Qualification & Experience                                                                                                                                                                                                                                                                                                                                                                             | Key Job Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NK-2 | Senior Signaling & Telecommunications Specialist | <ul style="list-style-type: none"> <li>• BSc in Electrical / Electronics / Signaling / Telecommunications Engineering (MSc preferred)</li> <li>• Minimum 10 years of professional experience in railway signaling, interlocking, and telecommunications systems</li> <li>• Experience in centralized traffic control (CTC) or equivalent integrated railway signaling systems will be an advantage.</li> </ul> | <ul style="list-style-type: none"> <li>▪ Review the existing signaling, interlocking, and telecommunications systems of BR, including operating philosophies, equipment types, standards, and control arrangements.</li> <li>▪ Assess compatibility and interoperability of the proposed signaling, interlocking, and telecom systems with existing BR systems.</li> <li>▪ Review and update the DED including system architecture of signaling, interlocking, and telecommunications systems.</li> <li>▪ Prepare and update detailed technical specifications for all signaling, interlocking, and telecommunications goods and systems.</li> <li>▪ Assess the availability of signaling and telecom equipment in the international market, and identify universally acceptable, and suitable for BR.</li> <li>▪ Support updating of BOQs for signaling, interlocking, and telecom systems, including verification of quantities, system components, and installation requirements.</li> <li>▪ Review and contribute to bid documents, ensuring that signaling and telecom requirements, specifications, testing, commissioning, and acceptance criteria are properly reflected.</li> <li>▪ Support the development of operation and maintenance plans related to signaling and telecommunications systems.</li> </ul> |
| NK-3 | Geotechnical Engineer                            | <ul style="list-style-type: none"> <li>• MSc in Geotechnical or Civil Engineering</li> <li>• Minimum 10 years experience in geotechnical design for linear infrastructure</li> </ul>                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>▪ Review geotechnical investigation data and reports</li> <li>▪ Assess embankment stability and settlement risks, proposed formation treatment and ground improvement measures</li> <li>▪ Assess slope stability and erosion risks and integrate climate-related geotechnical risks</li> <li>▪ Support updating of drawings and specifications</li> <li>▪ Coordinate with structures and track experts to ensure design consistency</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



| No.  | Expert Title                           | Minimum Qualification & Experience                                                                                                                                                                                                                                                                                                                                                                                                                                | Key Job Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NK-4 | Transport Economist                    | <ul style="list-style-type: none"> <li>• MSc in Economics, Transport Economics, or related field</li> <li>• Minimum 10 years experience in transport economic appraisal</li> </ul>                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>▪ Lead the activities proposed under Task 7.</li> <li>▪ Review existing traffic surveys and demand forecasts and validate passenger and freight demand assumptions</li> <li>▪ Review capital, O&amp;M cost assumptions</li> <li>▪ Quantify economic benefits including time savings and VOC savings and incorporate environmental and safety benefits</li> <li>▪ Update economic analysis and calculate EIRR and conduct sensitivity analysis</li> <li>▪ Prepare detailed Economic Analysis Report</li> </ul>                                                                                                                                                                                                                                            |
| NK-5 | Railway Operation & Maintenance Expert | <ul style="list-style-type: none"> <li>• Bachelor's degree in Railway Engineering, Civil Engineering, Mechanical Engineering, or equivalent</li> <li>• Minimum 10 years of professional experience in railway operations and/or maintenance</li> <li>• Proven experience with: <ul style="list-style-type: none"> <li>✓ Train operations (passenger and/or freight),</li> <li>✓ Maintenance regimes for railway infrastructure and systems</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>▪ Review the updated DED from an operability and maintainability perspective.</li> <li>▪ Assess whether proposed designs are compatible with BR's operating practices, staffing, and maintenance capacity.</li> <li>▪ Support preparation of the Operation Plan / Business Plan, including service patterns, train operations, station and yard operations.</li> <li>▪ Support preparation of the Maintenance Plan for track, structures, drainage, signaling, telecom, and level crossings.</li> <li>▪ Support development of Level Crossing Operation and Safety Plans, including staffing, automation, and coordination with road authorities.</li> <li>▪ Provide inputs to capacity-building needs related to operations and maintenance.</li> </ul> |
| NK-6 | Rail/ Road Safety Specialist           | <ul style="list-style-type: none"> <li>• Bachelor's degree in Civil Engineering, Transport Engineering, or equivalent</li> <li>• Minimum 10 years of professional experience in road and/or railway safety</li> <li>• Experience in preparing Level Crossing Safety Plans, traffic management measures, or safety improvement programs</li> </ul>                                                                                                                 | <ul style="list-style-type: none"> <li>▪ Prepare inventory of all rail-road crossings</li> <li>▪ Assess safety risks at level crossings</li> <li>▪ Recommend elimination, consolidation, or grade separation</li> <li>▪ Review warning systems, barriers, and signage</li> <li>▪ Review pedestrian and community safety measures</li> <li>▪ Prepare Level Crossing Safety and Operation Plan/ Maintenance Plan</li> <li>▪ Coordinate with signaling and design teams</li> <li>▪ Support BOQ inputs for safety measures</li> </ul>                                                                                                                                                                                                                                                               |

| No.   | Expert Title                                 | Minimum Qualification & Experience                                                                                                                                                                                                                                                                                                                                                                                                                     | Key Job Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NK-7  | Procurement & Contract Management Specialist | <ul style="list-style-type: none"> <li>• Bachelor's degree in Engineering, Procurement, Law, Business Administration, or related discipline</li> <li>• Minimum 10 years of professional experience in procurement and contract management</li> <li>• At least 5 years of experience in MDB-funded project procurement and contract management</li> <li>• Experience in large civil or railway infrastructure projects preferred</li> </ul>             | <ul style="list-style-type: none"> <li>▪ Review existing bid documents</li> <li>▪ Lead in updating the bidding documents keeping it aligned with AIIB SPDs</li> <li>▪ Ensure alignment with revised DED and BOQs</li> <li>▪ Support packaging and procurement strategy</li> <li>▪ Assist in responding to procurement-related comments</li> <li>▪ Advise on contract administration aspects</li> <li>▪ Define procurement timelines, contract packaging, and award milestones for integration into the work plan and schedule.</li> </ul>                                               |
| NK-8  | Gender & Social Inclusion Specialist         | <ul style="list-style-type: none"> <li>• Master's degree in Gender Studies, Social Sciences, Development Studies, or a related discipline</li> <li>• Minimum 10 years of professional experience in gender and social inclusion in infrastructure or transport projects</li> <li>• Prior experience in MDB-funded projects (AIIB / WB / ADB or similar) will be an advantage</li> </ul>                                                                | <ul style="list-style-type: none"> <li>▪ Conduct gender-differentiated impact assessment</li> <li>▪ Assess access, mobility, employment, and safety impacts</li> <li>▪ Identify GBV and labor influx risks</li> <li>▪ Prepare Gender and Social Inclusion Plan (GSIP)</li> <li>▪ Recommend mitigation and monitoring measures</li> <li>▪ Support stakeholder consultations</li> <li>▪ Coordinate with Social Specialists</li> <li>▪ Support capacity-building activities</li> </ul>                                                                                                     |
| NK-9  | Cost Estimation / BOQ Specialist             | <ul style="list-style-type: none"> <li>• Bachelor's degree in Civil Engineering, Quantity Surveying, or equivalent</li> <li>• Minimum 10 years of professional experience in quantity surveying, BOQ preparation, and cost estimation</li> <li>• Demonstrated experience using Government Schedule of Rates (SoR) and market rate analysis</li> <li>• Experience in preparing engineer's estimates, cost comparisons, and variance analyses</li> </ul> | <ul style="list-style-type: none"> <li>▪ Review existing BOQs and quantities</li> <li>▪ Identify omissions, duplication, and inconsistencies</li> <li>▪ Update BOQs based on revised drawings</li> <li>▪ Apply GoB Schedule of Rates</li> <li>▪ Conduct market rate analysis for non-SoR items</li> <li>▪ Prepare engineer's cost estimates</li> <li>▪ Prepare cost comparison and variance statements</li> <li>▪ Support review and approval processes</li> <li>▪ Develop cost-weighted activity sequencing and inputs for the financial S-curve and cash-flow projections.</li> </ul> |
| NK-10 | Junior Environmental Specialist              | <ul style="list-style-type: none"> <li>• Bachelor's degree in Environmental Engineering, Environmental Science, or related discipline</li> <li>• Minimum 5 years of professional experience in environmental management</li> <li>• Experience in field data</li> </ul>                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>▪ Support environmental data collection and analysis</li> <li>▪ Assist in baseline updates</li> <li>▪ Support EMP preparation</li> <li>▪ Assist in monitoring framework development, Support reporting and documentation</li> </ul>                                                                                                                                                                                                                                                                                                              |



| No. | Expert Title | Minimum Qualification & Experience                                                                                                        | Key Job Responsibilities                                                                      |
|-----|--------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|     |              | collection, documentation, and stakeholder consultations<br>• Familiarity with national environmental regulations; MDB exposure desirable | • Coordinate field surveys<br>• Assist senior environmental expert<br>• Support consultations |

**G. Output and Reporting Requirements:**

11. The consultant will carry out activities according to the following time schedule and submit reports about the activities and outputs. Adjustments to the outputs may be proposed by the consultant according to the field situation, but will be subject to the client's approval.
12. The consultant will submit all reports/deliverables in English in both hard and electronic copies (4 hard copies), along with all raw data. The PIU and AIIB will review the reports and provide suggestions and modifications to be incorporated in the final version.

**Table 2: Reporting Requirements:**

| Report                                                                    | Description/ Technical Accomplishments                                                                                                                                                                                                                    | Submission Deadline (From Effective Date) |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <b>1. Inception Report</b>                                                | Description of proposed methodology, works and staffing schedules; comments on the ToR for this contract/package and comment and observation on issues which may have technical or financial implications, or which may affect the progress of the works. | 0.5 Month                                 |
| <b>2. Interim Reports</b>                                                 |                                                                                                                                                                                                                                                           |                                           |
| 2a. Draft Environmental and Social Due Diligence/ E&S Gap Analysis Report | Review of existing Environmental and Social instruments prepared under the project to date, highlighting gaps and corrective actions to comply with the AIIB ESF                                                                                          | 1 Month                                   |
| 2b. Draft climate risk assessment (CRA) and GHG accounting reports        | Draft climate risk assessment and GHG accounting reports                                                                                                                                                                                                  | 2 Months                                  |
| 2c. Draft Carbon Market Feasibility Assessment Report                     | Draft Carbon Market Feasibility Assessment Report                                                                                                                                                                                                         | 2 Months                                  |
| 2d. Draft Economic Analysis Report                                        | Preliminary Report with review of existing report, potential gaps and proposed methodology for improving the forecasting, raw data, and analysis                                                                                                          | 2 Months                                  |
| 2e. DED Gap Analysis Report                                               | Draft DED Gap Analysis Report in light of the identified ESDD and preliminary CRA, initial BoQ analysis                                                                                                                                                   | 2.5 Months                                |

| Report                                                              | Description/ Technical Accomplishments                                                                                                           | Submission Deadline (From Effective Date) |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <b>3. Final Reports</b>                                             |                                                                                                                                                  |                                           |
| 3a. Final ESDD Report                                               | Updated SIA, EIA, RAP, including Income and Livelihood Restoration Plan, Stakeholder Engagement Plan, Gender and Social Inclusion Plan           | 3.5 Months                                |
| 3b. Final climate risk assessment report and GHG accounting reports | Final climate risk assessment report and GHG accounting report                                                                                   | 3.5 Months                                |
| 3c. Final Carbon Market Feasibility Assessment Report               | Final Carbon Market Feasibility Assessment Report                                                                                                | 3 Months                                  |
| 3c. Final Economic Analysis Report                                  | Final Report with detailed Excel calculation and all referenced data                                                                             | 3.5 Months                                |
| 3d. Design Report including updated DED                             | Finalize Design Report along with and Bid Documents incorporating relevant comments from BR and financier(s), BoQ, Cost Estimates, Bid Documents | 5 Months                                  |
| 3e. Other Reports                                                   | Other reports and activities mentioned under the ToR, particularly in Task 8                                                                     | 5.5 Months                                |

#### H. Payment Schedule:

- 20% of the lump-sum Contract Price will be paid upon submission of the Inception Report.
- 40% of the lump-sum Contract Price will be paid upon submission of the Interim reports duly accepted by the Client.
- 40% of the lump-sum Contract Price will be paid upon submission of the Final Reports duly accepted by the Client.

#### I. Facilities to be provided by the Client:

13. The Client will provide communication facilities with the concerned PIU of BR to provide all the available previous reports and supporting documents/ information on the feasibility study, RAP, LAP, EIA, SIA, Bid Documents, and DED of the Project.

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