

**GOVERNMENT OF ASSAM**  
**ASSAM INLAND WATER TRANSPORT DEVELOPMENT SOCIETY (AIWTDS)**

**REQUEST FOR EXPRESSIONS OF INTEREST**  
**(CONSULTING SERVICES – FIRMS SELECTION)**

**Country:** INDIA

**Name of Project:** ASSAM INLAND WATER TRANSPORT PROJECT [AIWTP]

Loan Credit No.: IBRD-P4830

**Assignment Title:** Appointment of Naval Architectural and Marine Engineering Firm for providing consulting services for AIWTP

**Reference No.** ( as per Procurement Plan): IN-IWT-89165-CS-QCBS

The Government of India *has applied for* financing from the World Bank toward the cost of the AIWTP, and intends to apply part of the proceeds for consulting services.

The consulting services (“the Services”) include:

- a) The design of various types of new vessels for the Assam Inland Water Transport Development Society (AIWTDS) in compliance rules for Inland Waterway Vessels, including Classification Rules; and
- b) The design of modifications to existing Country and IWT Vessels to ensure compliance with rules for small passenger boats.

The detailed Terms of Reference (TOR) for the assignment are attached to this request for expressions of interest.

The AIWTDS now invites eligible consulting firms/organizations/institutions (“Consultants”) to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The shortlisting criteria are:

- i) The Consultant must have at least 10 years proven experience in the design and of inland water way vessels built to Indian or other Classification Society Standards;
- ii) The Consultant shall, in the last five year period, successful completed the detailed design, with Classification Society approval, of at least:
  - Two pure passenger ferries (with a capacity of between 20 and 200 passengers);

- Two Ro-pax ferries (with a capacity of at least 10 vehicles and 50 passengers); and
- Two multipurpose service vessel in the last five years

Evidence of the successful design shall be provided. This shall include vessel specifications, general arrangement type drawings and evidence of successful operation. The Consultant shall also include owner's names and the contact detail and a statement from the owner of their willingness to provide a reference for the design;

- iii) The Consultant should have a sound balance sheet, sustainable financial performance and appropriate resources. (Average annual turnover of the last three years i.e. 2015-16, 2016-17 & 2017 -18 should be submitted); and
- iv) The Consultant must have an in-house technical team and expert staff available to design the vessels complete using advanced engineering tools to determine, among other things, hull form, strength, capacity, stability and maneuverability. The team shall include marine engineers to design all vessel systems, including main and auxiliary engines, propulsion, piping, electrical and other systems.

Key Experts will not be evaluated at the short-listing stage.

The attention of interested Consultants is drawn to paragraph 1.9 of the World Bank's Guidelines: Selection and Employment of Consultants [under IBRD loans and IDA Credits & Grants] by World Bank Borrowers January 2011 [revised July 2014] (Consultant Guidelines), setting forth the World Bank's policy on conflict of interest.

Consultants may associate with other firms to enhance their qualifications but, should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

A Consultant will be selected in accordance with the Quality and Cost Based Selection [QCBS] method set out in the Procurement Regulations.

Further information can be obtained at the address below during office hours [1100hrs to 1700hrs].

Expressions of interest must be delivered in a written form to the address below **by 21<sup>st</sup> January 2019**

**Sd/-**  
**Additional State Project Director,**  
**Assam Inland Water Transport Development Society**  
**Ulubari, Guwahati-7**  
**E-mail: [dir.iwtds-as@gov.in](mailto:dir.iwtds-as@gov.in)**

# **Terms of Reference for Naval Architect and Marine**

## **Engineering Firm**

### **1. INTRODUCTION & BACKGROUND**

- Assam has approximately 1980 km of navigable waterways of which the most important for transport purposes are the Brahmaputra and Barak Rivers. The Brahmaputra River with a length of 891 Km between the Bangladesh Border and Sadiya, was declared National Waterway no. 2 by the Government of India in 1988, the development of its navigation infrastructure thereafter being the responsibility of the Inland Waterways Authority of India (IWAI). IWAI is currently aiming to maintain a navigable depth of 2.5m from Bangladesh Border to Neamati (629 Km), 2.0 m from Neamati – Dibrugarh (139 Km) and 1.5m from Dibrugarh – Sadiya. However, while AIWTDS is responsible for the navigation ‘fairway’ it does not have responsibility for operating water transport services. These services are provided by the State or local governments.
- Both urban and rural ferry services are provided by the Directorate of Inland Waterway Transport Assam, and by country boat operators – typically small independent and informal private businesses. In addition to the 97 ferry service routes designated by the Directorate of IWT, there are numerous routes licensed by the local (village) and district councils. Other users of the river include the Central Inland Water Corporation Limited,, security forces, tourist organizations and other private cargo operators.
- The Directorate of Inland Waterway Transport Assam, established in 1958 and part of the Assam Transport Department, is responsible for developing, maintaining and regulating IWT services in the state. It also operates and maintains many of the passenger transport services, ferry terminals and navigation aids on both Brahmaputra and Barak Rivers. Headquartered in Guwahati, it has three divisional offices in Guwahati, Dibrugarh and Silchar; five sub-divisional offices in Guwahati, Goalpara, Jorhat, Dibrugarh and Hailakandi; and three commercial offices at Guwahati, Goalpara and Dibrugarh. It also has a Crew training centre at Guwahati. DIWTA currently has a total of about 4,330 regular staff.
- The ferry industry as a whole is characterised by an aging and poorly equipped fleet. Most demand is now met by the informal sector operating traditional country boats without supporting infrastructure. Terminal facilities and navigational aids are insufficient. Most ferry terminals consist of no more than improvised moorings on the bank of the river, which require relocation with changing river conditions, often over substantial distances. In the absence of bank protection, the main ferry terminals in or close to the urban centres (provided with floating, movable steel pontoons and temporary access roads) also typically require frequent relocation as river conditions change across seasons. The cargo sector is small partly because of market circumstances, partly because of connectivity problems and partly because the navigation standards provided do not permit reliable year round use by large modern

vessels that can deliver competitive advantage over other transport modes.

- In order to leverage the benefits of inland water transport, the Government of Assam wishes to transform the quality of inland water transport services and integrate high quality passenger and vehicle ferry services, and inland water freight transport into Assam's wider transport network system. The Government of Assam has applied for World Bank loan assistance to implement its project for (i) Developing Long Term Strategic Plan for IWT in Assam and Institutional and Capacity Development and (ii) Improvement in Ferry Services.

## 2. SCOPE OF WORKS

The key tasks for this assignment are as following:

### **Task A: The design of various types of new vessels for the Assam Inland Water Transport Development Society (AIWTDS).**

This task shall be split into two parts including Conceptual and Detailed design work.

Task A1: Conceptual Design Works.

The Consultant shall prepare Conceptual Designs for the following Vessels:

- i. A ropax ferry with a capacity of 60 passengers and 15 motor cycles
- ii. A ropax ferry with a capacity of 150 passengers and 50 motor cycles
- iii. A ropax ferry with a capacity of 200 passengers and 15 light commercial vehicles
- iv. A ropax ferry with a capacity of 150 passengers and 50 commercial vehicles and
- v. A multipurpose survey vessel outfitted for both bathymetric survey work, riverbed, sediment and water quality sampling;
- vi. A multipurpose tug and buoy-handling vessel. This vessel shall be provided sufficient bollard pull to tow all vessels mentioned in i-v above.

(The above list is indicative only and will vary depending on the actual requirement at the time of publication of Request for Proposal (RFP)).

All conceptual design work shall be based on review and study of (i) the characteristics of the river systems in Assam, (ii) long term IWT development and other plans of Directorate of Inland Water Transport Services and the Inland Waterway Authority of India, and (iii) Indian, State and Classification Society Rules and Regulations. The rules for Classification Society approval shall be those made by a Classification Society that is a member of the International Association of Classification Societies.

Conceptual design work for all vessels shall be prepared for both monohull and catamaran type hulls of all welded construction in either marine grade steel or aluminum

or other materials All vessels shall be fitted with twin propulsion systems capable of a service speed of at least 10 knots when running against flood river current (a speed of about six knots) at maximum deadweight and 85% of maximum continuous rating (MCR). Draft at maximum deadweight shall not exceed 1.2 meters and lightweight air-draft shall not exceed 4.5 meters.

Concepts shall furthermore take into consideration use of different types of fuel for main and auxiliary engines, including but not limited to diesel and diesel/electric engines. All diesel engines shall comply with rules regarding the Prevention of Air Pollution from Ships. Moreover all vessels shall be provided with facilities preventing in-river discharge of oil and oily water. Propulsion systems shall consist of fixed pitched propellers and these and all rudder arrangements shall be protected from possible grounding events (i.e. the vessels shall be designed to lie aground).

All passenger, vehicle, machinery and other spaces shall strictly comply with Indian, State and Classification rules for inland water vessels. Each vessel shall be provided with raised wheelhouse located amidships or on the forward part of the vessel, which shall provide good all round visibility. The wheelhouse shall be fitted with integrated control, communication and navigation equipment. This shall include equipment for all main and auxiliary engine control, instrumentation and alarms, positioning, tracking, radio and other electrical and non-electrical equipment.

The navigation system on each vessel shall comprise of an integrated package that includes GPS positioning, an Electronic Chart Display and Information System, Depth Sounder, Heading and Speed Indicators, Wind Measurement and, an Automatic Identification System (AIS). The vessels shall furthermore be provided with a radio installation capable of transmitting and receiving distress messaging through VHF using Digital Selective Calling (DSC).

All conceptual design work shall include indicative vessel construction cost based on the different types of hull form, propulsion and other outfitting arrangements. In considering construction cost, an evaluation shall be made on the practicality of building the vessels wholly or partially in Assam, other location within India or abroad. Detail shall furthermore be provided on expected running cost, especially in respect of fuel efficiency mindful of hull form, type and size of propulsion machinery when operating at MCR, 85% of MCR and 50% of MCR.

## Task A2: Detailed Design Works.

Following conceptual design review and approval, the Directorate of Inland water Transport of Assam shall, based on hull and machinery performance, cost and other considerations, select one type of design vessel for each respective service. The Consultant shall thereafter prepare all detailed design documentation. This shall include the preparation of all plans, drawings, machinery and material detail necessary for both Flag State and Classification Society approval.

The Consultant shall furthermore assist in the preparation and completion of bidding documents as per the World Bank procurement guidelines.

## **Task B. The design of modifications to existing Country Boats and IWT vessels.**

### Task B1. Surveys and Inspections

The Consultant shall, taking into consideration various reports and schemes to improve their safety and performance, survey and inspect vessels of various sizes that typically operating in different parts of Assam. The focus shall be to identify generic features of existing design and provide generic recommendations for their modification to meet safety and performance standards.

All surveys and inspections shall therefore take into consideration Indian or other International Rules, Recommendations and Codes of Practice for the design, construction, operation and maintenance of small passenger boats and shall include detailed findings on matters that may affect their river-worthiness – taking into account licensed capacity and environmental conditions in which they operate.

Surveys and inspections shall include but not be limited to findings in respect to:

- Principal Dimensions, Design and Build Quality
- Structural Strength;
- Weather-tight Integrity and Freeboard
- Water-freeing and Bilge Pumping Arrangements;
- Machinery Arrangements;
- Electrical Arrangements
- Steering Gear, Rudder and Propulsions Systems;
- Intact and Damage Stability;
- Life Saving Appliances;
- Fire Safety and Firefighting Arrangements;
- Navigation Equipment;
- Anchors and Cables;

- Other Miscellaneous Equipment
- Manning and Compliance.

#### Task B2. Modification Requirements and Cost Estimates

Following Survey and Inspection, the Consultants shall prepare a schedule of modifications required to ensure river-worthiness for the different type and size of Country Boats operating in Assam.

This shall take into consideration passenger; vehicle and cargo capacity restrictions based on rules, recommendations and codes of practice for the design, build, testing and operation of small passenger boats and shall include but not be limited to:

- Drawings and plans for hull, machinery, outfit and other necessary arrangements requiring modification;
- The preparation of technical standards for all hull and machinery modifications;
- The preparation of cost estimates for each type of modification required;
- Procedures for performing intact and/or damage stability testing; and
- Preparation of other required checklists/documents for subsequent inspection and licensing as per all relevant regulations.

### 3. DELIVERABLES & TIMELINES

It is envisaged that the study will be undertaken in accordance with the following timetable and deliverables:

Task	Deliverables	Time period from Contract Signoff (in Months)
<b>A</b>	<b>The design of various types of new vessels for the Assam Inland Water Transport Development Society (AIWTDS)</b>	
A1	Survey Report & Workshop with Stakeholders	1.5
A2	Concept Design Report with alternatives (5 copies)*, and presentation of draft report.	3
A3	Final Design Report (5 copies)* with alternatives, tender document and presentation of report	4
<b>B</b>	<b>The design of modifications to existing Country Boats and IWT vessels</b>	
B1	Surveys and Inspections	4
B2	Modification Requirements and Cost Estimates (5 copies)*, and presentation of draft report.	6
B3	Final Design Report (5 copies)* with alternatives, tender document and presentation of report	8

*\* Required copies can be submitted after final approval of clients at all the stages of deliverables.*

The details of the deliverables mentioned in the table are given below:

- i) Survey Report shall contain status of survey, assessment of existing vessels, concepts for of proposed modifications
- ii) Final Design Report shall be prepared as per scope of work and TOR, along with detailed design and drawings, detailed specifications, cost estimate. The Final DPR should address the comments of the Client
- iii) Apart from the five (5) hard copies and two (2) soft copies of final Design Reports shall also be submitted to AIWTDS.
- iv) Draft Design, Bill of Quantity (BOQ), Technical Specifications and Cost estimates (5 hard copies) as per scope of work for comments of Client.
- v) Consultant have to submit Monthly Progress Report

If at any stage mentioned above, the Consultant apprehends delay in the submission of any stage report, they shall at least a fortnight in advance, seek time extension on sufficient grounds, for the reasons beyond the control of the consultant, which would be without any additional financial implications to the Employer. If the delay is caused beyond the extended period if any, or if the progress/services are unsatisfactory the Employer shall have the right to terminate the contract and be entitled to employ and pay other agencies/consultants (new) to carry out the work at the risk and cost of original consultant and all expenses consequent thereon or incidental thereto shall be recoverable from the consultants by the Employer and will be deducted from any dues or which may become due to the consultants.

#### 4. KEY PERSONNEL & EXPERIENCE REQUIREMENTS

The Consultancy Team shall consist of the Professional Staff (The “Key Personnel”) who shall discharge their respective responsibilities to deliver the overall scope of work of this Tender and Deliverables outlined as above. Consultants will provide a team of experts and support team to complete the assignment with high quality standards

No.	Key Expert	Minimum Qualification	Relevant Experience
1	Team Leader	<ul style="list-style-type: none"> <li>• Master’s degree in Engineering</li> <li>• Minimum 10 years’ experience in project management and operations, delivery and oversight, with broad knowledge of transport issue and specialist knowledge of waterways transport</li> </ul>	15 Years
2	Naval Architect	<ul style="list-style-type: none"> <li>• B. Tech (Naval Architecture)</li> <li>• 10 years in vessels/ship design.</li> <li>• Should have successfully completed 2 designs of similar nature.</li> </ul>	15 Years
3	Chief Engineer with MEO Class I	<ul style="list-style-type: none"> <li>• BE (Marine Engineering)</li> </ul>	15 Years



<b>4</b>	<b>Draftsman</b>	<ul style="list-style-type: none"> <li>• <b>Diploma from Technical Institute</b></li> <li>• <b>Experienced in CAD Design</b></li> </ul>	<b>8 Years</b>
----------	------------------	---	----------------

**5. THE OBLIGATIONS OF THE CONSULTANT.**

The Consultant shall make his own arrangements for all living accommodation, transportation, personal equipment such as computer or laptop and stationery. The nominated Team Leader will be expected to spend the majority of the assignment on location in Assam. All reports, minutes of meetings etc. shall be drafted by the Consultant. Circulation thereof shall be done by the AIWTDS.

**6. THE OBLIGATIONS OF THE AIWTDS:**

The AIWTDS will make available to the Consultant all relevant reports and data in its possession and/or collected from AIWTDS and other agencies (if relevant), but the Consultant shall be fully responsible for the interpretation and use of the material in question as well as for the conversion of available data into a form that can be used in the system he sets up. The AIWTDS will assist to liaise as necessary with other government offices/authorities as required in order to facilitate the Consultant's work.

**7. THE MANAGEMENT OF THE STUDY**

The primary point of contact for the Consultant will be Project Director AIWTDS who will represent the project officer within the AIWTDS. He/ She will form part of a steering committee to be established within AIWTDS, comprising representation from relevant Ministries, other relevant local agencies, and suitable public and private stakeholders. The Consultant will be expected to present the content of the reports to the steering committee.

**8. MONTHLY MEETINGS**

Monthly meeting will be held for progress review & way forward and it is mandatory for Team Leader to attend with relevant team at Guwahati.

