



**INLAND WATERWAYS  
AUTHORITY OF INDIA**

**(Ministry of Shipping, Govt. of India)  
A-13, Sector - 1, NOIDA - 201 301,  
Distt. Gautam Budh Nagar, (U.P.)  
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**EXPRESSION OF INTEREST (EOI) for shortlisting of Indian firms engaged for supply, installation & commissioning of unified vessel web based tracking & monitoring system with the facility for bio-metric attendance for the crew as well as fuel measuring & monitoring systems for the machineries of the fleet of IWAI through GPS based information technology.**

Sealed offers from the interested firms on the above mentioned work is invited so as to reach to the office of Chief Engineer (P&M) Inland Waterways Authority of India at above mentioned address on or before 1500 hrs 28.06.2013. The detailed information on EOI, eligibility etc can be seen at IWAI website. [www.iwai.nic.in](http://www.iwai.nic.in)

**S.DANDAPAT  
CHIEF ENGINEER(P&M)**



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IWAI/MD/171/2013-14

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### **Expression Of Interest (EOI) for shortlisting of Indian firms engaged for supply, installation & commissioning of unified vessel tracking & monitoring systems with the facility for bio-metric attendance for the crew as well as fuel measuring & monitoring systems for the machineries of the fleet of IWAI through GPS based information technology.**

#### **1. Introduction**

- I. Inland Waterways Authority of India (IWAI) a statutory organization under the administrative control of Ministry of Shipping, Govt. of India, is responsible for the development, management and maintenance of National Waterways for Shipping and Navigation as well as promotion of Inland Water Transport in the country. The details on IWAI is available at [www.iwai.nic.in](http://www.iwai.nic.in)
- II. Inland Waterways Authority of India (IWAI) is having a fleet consisting of different size and types of vessels such as dredgers, survey launches, work boats, tugs, accommodation boats, inspection boats, cargo vessels, supply vessel/crew launch etc. which are deployed for development and maintenance of the waterways for providing the fair way navigable channel, safety measures and promotional cargo services.
- III. IWAI desires to avail the services of the firm/company engaged for supply, installation & commissioning of vessel tracking & monitoring, bio-metric attendance for the crew as well as fuel measuring & monitoring systems for the machineries of the fleet of IWAI through GPS based information technology for establishing an effective vessel management information system to ensure better scheduling/ utilization of the fleet and human resources.
- IV. The details of the fleet and the type of main engines, auxiliary engines, the crew details, area of operation, nature of duty etc is attached as **Annexure-I**

## 2. **Scope of Work:**

The Unified Vessel Monitoring System for IWAI fleet shall be an integrated solution comprising of both the necessary hardware and software required for the monitoring of the different types of vessels under operation on three National Waterways i.e NW-1 (1620 KM for the stretch between Haldia to Allahabad of the Ganges, Bhagirathi and Hooghly river system), NW-2 (871) KM for the stretch between Dhubri to Sadiya of the river Brahmaputra) & NW-3 (205 KM for the stretch between Kottapuram to Kollam of West Coast Canal including Champakara and Udyogmandal canal). The basic purpose of the unified monitoring system shall be for:

1. Tracking & Monitoring of vessel/ dredger/craft with respect to their location/ position on the National Waterways and the speed while in movement. The positioning of the vessel shall be with respect to the geographical coordinates i.e. longitude, latitude etc.
2. Providing the details of the running hours and RPM of the various machineries such as main engine, aux. engine etc installed on board the vessels/dredgers with minimum 2 nos. to maximum 9 nos.
3. Biometric Attendance monitoring of the operational staff/crew deployed on vessel/dredger is to be based on the finger tips or photograph or both. The device to be capable of monitoring the attendance of approx. 1500 staff with the facility for creation of data base for a specified period.
4. The system for measuring & monitoring of the fuel consumption of the various machineries installed on each vessel/dredger with maximum 2 main engines, two nos auxiliary engines & one/two smaller engines for other purposes shall have the capacity for measuring with higher accuracy, recording the consumption of fuel on hourly basis to create a data base for a minimum period of six months.

All the above information and data will be transmitted from the vessel directly to the designated computer/mobile phone or official website of IWAI through GSM/GPRS network and IT infrastructure server in the custody of the contractor supplier. The application software developed by the contractor shall receive the parameters and present the same in the form of required formatted report to the Inland Waterways Authority of India and also have facility of context based reports generation.

## 3. **Design and development of the system:-**

A. **Software:-** The contractors (once the tender procedure finalized & work awarded to successful bidder) obligation shall cover the entire range of IT activities including design, development, supply, customization, implementation and auditing of IT system, network and software through empanelled CERT-in agencies wherever applicable, support of software development, back-ups, implementation, maintenance and digitization for Supply, Installation and Commissioning of Unified Vessel Monitoring System for vessels of IWAI comprising of all required software including software development, customization, technical consultancy, IT infrastructure required to host the

software and providing technical support in accordance with the plans, procedure, specifications, drawings, codes and any other documents specified in the contract and the agreed and finalized project plan.

- I. The Contractor shall perform all such work and / or supply all such items and materials not specifically mentioned in the contract but that can be reasonably inferred from the contract as being required for attaining operational acceptance of the system as if such work and / or items and materials were expressly mentioned in the contract.
- II. The contractor's obligations under the contract will include the recurrent cost items also as described in the Technical Requirements.
- III. The contractor shall supply all the required materials and provide all services specified in the contract and agreed and finalized works plan with the highest standards of professional competence.
- IV. The scope of works shall be described in detail in the technical requirement of the tender documents.

Biometric Attendance monitoring of the operational staff/crew deployed on each vessel/dredger is to be based on the finger tips or photograph or both. The device to be capable of monitoring the attendance of approx. 1500 staff with the facility for creation of data base for a specified period.

The system for measuring & monitoring of the fuel consumption of the various machineries installed on each vessel/dredger with maximum 2 main engines two nos auxiliary engines & one/two other smaller engines for other purposes shall have the capacity for measuring with higher accuracy, recording the consumption of fuel on hourly basis to create a data base for a minimum period of six months. Free update & modification in the software during the contract period is also to be considered.

## **B. HARDWARE**

- I. The contractor obligations cover the entire range of hardware related activities including design, development, supply, customization, implementation and support of hardware items as defined in the technical requirements for Supply, Installation and Commissioning of Unified Vessel Monitoring System for the fleet of IWAI and providing technical support in accordance with the plans, procedure, specifications, drawings, codes, and any other documents specified in the contract and the agreed and finalized project plan.
- II. The Contractor shall perform all such work and / or supply all such items and materials not specifically mentioned in the contract but that can be reasonably inferred from the contract as being required for attaining operational acceptance of the system as if such work and / or items and materials were expressly mentioned in the contract.
- III. The contractor's obligations under the contract will include the recurrent cost items as to be described in the Technical Requirements.

IV. The contractor shall supply all the required materials and provide all services specified in the contract and agreed and finalized project plan with the highest standards of professional competence.

V. The scope of works shall be described in detail in the technical requirement of the tender documents.

#### **4. Technical features of the application software**

The application software developed by the contractor in brief and also in general shall comprise of the following minimum features –

1. Live Tracking of the vessel to know the exact location with accuracy +/- 10m and speed of the vessel on a real-time basis with +/- 0.01Knot(where 1KNOT = 1.82KM/hr)
2. Facility to view multiple vessels on a single map
3. Position of the vessel to be superimposed on a map provided by reputed map service provider such as Google Maps.
4. Historical data of the vessel position and movement accessible for maximum period of one year.
5. Engine up time and down time data of the vessel presented on a real-time basis i.e from starting to stopping time for each engine.
6. Engine up time and down time historical data of the vessel as per defined date range i. e maximum for operation of six months.
7. Historical Attendance records of the vessel crew accessible as per defined month range i.e maximum for a period of six months. The system is to be created for each vessel.
8. Fuel consumption records of the vessel on machineries wise with a historical data for a period of 12 months. The accuracy on these is to be ensured as for as feasible & limited to +/- 5 liter per hr.
9. The facilities for analysis of the data and creation of the report automatically as per the pre-defined & pre-designed format shall be provided. The same report and data shall be transmitted to IWAI through designated email/mobile phone and also uploaded in the official website. The above information data is to be transmitted in a pre-defined time frame i.e hourly, daily, weekly, and monthly for a period of maximum three months and also facility to impart data in other format as well like MySQL/excel etc .
10. Surveillance activities i.e taking of the picture of the river channel or any other within the range & sending the photograph with a historical data for one month.

## 5. Technical Specification

The firm may submit their technical detail other than as mentioned below in the EOI with the additional feature, advantage with respect to cost, operation & maintenance.

### 5.1. GPS Tracking Device

#### Features:

- ✓ 12 Channel GPS Receiver with -161 dBm gain.
- ✓ GPRS Class B, Multi Slot Class 12.
- ✓ Local & Over the Air Firmware download.
- ✓ Local & Over the Air Configuration.
- ✓ Secured Over The Air Configuration.
- ✓ Supports Geo-Fence zones with alerts for entry & exit of the zones.
- ✓ Local and Over the Air configuration of Geo-Fence zones.
- ✓ Alert for Harsh Breaking.
- ✓ Alert for Harsh Acceleration.
- ✓ Alert for Over Speeding.
- ✓ GPS Odometer.
- ✓ GPS Antenna Tamper Detection.
- ✓ Configurable GSM & GPS intervals for Main Power, Internal Battery and Roaming.
- ✓ Intelligent Data Sending Mechanism.
- ✓ RS-232 Serial Port.
- ✓ Remote Device Status Monitoring.
- ✓ Supports SMS Communication.
- ✓ Supports TCP, UDP and HTTP Communication Protocols.
- ✓ GSM and GPS Integrated Antennas.
- ✓ Low Power Consumption.

#### Advanced Specifications:

- ✓ Advanced 32 Bit Cortex M3 Microcontroller.
- ✓ Wide Operating Voltage (DC 6V to 36V).
- ✓ Over Voltage Protection.
- ✓ Reverse Connection Protection.
- ✓ GPS Antenna Tamper Detection.
- ✓ Supports GSM 900 / 1800 MHz.
- ✓ GPRS Class B, Multi Slot Class 12.
- ✓ Powerful GPS receiver supporting 24 channels.
- ✓ Supports TCP, UDP and HTTP Protocols.
- ✓ Supports over the Air Firmware Update.
- ✓ Supports over the Air Configuration.
- ✓ RS-232 Serial Port.
- ✓ LED Indication for GSM Status, GPS Status, Main Power Status and Internal Battery Status.
- ✓ Main Power Voltage Monitoring.

## 5.2. Biometric attendance machine

- ✓ Biometric time & attendance system with GPRS
- ✓ Internal battery backup upto min. 5 hrs.,
- ✓ User-3000- 10,000 fingerprints,
- ✓ Transaction-1,00,000 Logs,
- ✓ CPU-32 bit high speed embedded processor,
- ✓ Sensor- 500dpi Optical Sensor,
- ✓ Identification speed-1 Sec.,
- ✓ FAR-0.0001%,
- ✓ FRR- 1%,
- ✓ Communication-RS 232, RS 485, TCP/IP, USB, USB-HOST & Client 2.0 Port,
- ✓ Operational temp. 0-45 degree centigrade, Operational
- ✓ Humidity-20-80%,
- ✓ Power-12 V DC, 400 mA,
- ✓ LCD-3" color TFT,
- ✓ Auto Push Data Service on Internet/ GPRS
- ✓ MS Access/MS SQL Server/Oracle database.

## 5.3. Fuel flow meter

- ✓ Display - Digital
- ✓ Displayed values - Total volume, Resettable volume, Current Flow, Total hours used, Max. flow
- ✓ Units displayed - m3, Litre, US Gallons
- ✓ Accuracy Standard -  $\leq 1$  % of reading,  $\leq 0.2$  % repeatability

## 5.4 . Signal system for machineries up & down time

Appropriate system is to be designed and developed for recording and transmitting the information with regard to the details on the working/operational status of the main machineries such as main engines, auxiliary engines, harbor genset etc available on board the vessels/dredgers.

## **6. Commissioning and Maintenance**

All the above system with the required hardware and software are to be installed, commissioned and maintained atleast for three years which may be extended on year to year basis depending on the performance maximum for 5 years.

## **7. Training**

The necessary training to the crew and officials of IWAI on the operation and day to day maintenance of the various systems as well as analysis of the information/data obtained from the system shall be extended atleast for three months in different period as per the convenience of IWAI.

## **8 Copy Right**

The copy right of the Software/programme for the above systems to be installed on board the fleet of IWAI shall remain with the suppliers including the IPR (Intellectual Property Right). However the software and hardware as provided shall be the property of IWAI. These systems once supplied & installed may undergo further modification and improvement as and when necessary.

## **9. Detail Project Proposal**

Based on the above scope of work and brief technical specification & information, the interested parties may submit a detail project proposal in his offer covering all aspect i.e a brief descriptions on the software, hardware, information/outputs to be generated, principle adopted, budgetary cost of the hardware & software, installation & commissioning as well as maintenance for three years, training programme etc separately. The cost effective of the total system for easy operation having scope for further improvement etc. may be the main criteria for the systems to be installed and commissioned.

## **10. Eligibility Criteria:**

The Indian firm intending to submit EOI must fulfill the following pre-qualification criteria:-

- a. The proposal for the desired EOI may be submitted by an individual firm or jointly with two or three firms forming a joint venture, partnership firm as per the relevant rules & regulations for subsequent tendering and execution of the work
- b. The firm/firms must have documentary evidence such as manufacturers/suppliers valid registration certificate for manufacturing equipment / Authorization certificate as dealer / Supplier of reputed brand of the equipment.



- c. The firm/firms should have similar work experience on the development, marketing followed by installation of the system as mentioned and brief description of projects recently undertaken in the relevant field.
- d. Copies of similar supply orders / performance certificates / job completion certificates issued by the client during the past 3 years.
- e. The firm/firms should have supplied & performed at least similar equipment during the past 3 years. The firm should provide a list of the equipment installed in various reputed Govt. / PSU's / reputed Private sector organizations.
- f. The firm/firms in case of participating directly should have documentary evidence establishing that the firm have local service centers in India with three years' experience in maintaining systems and have trained engineers.
- g. The foreign firm/firms should have documentary evidence about firm's financial and technical capability necessary to perform the contract / supply order including capacity in terms of personnel for the purpose of carrying out the service.
- h. The firm/firms should have documentary evidence such as brochures establishing that the equipment to be supplied by the Supplier conform to the EOI.
- i. The firm/firms should have documentary evidence that equipment being offered should be based on proven design. This aspect should be clearly stated in the EOI.

**11. Proven design means:**

- a) One should have executed similar order
- b) Should have supplied similar equipment & system and working satisfactory at least for two years.
- c) Should have proven track record of timely delivery without cost overrun.
- d) Similar equipment supplied should have performed to the satisfaction of the owner.

**12. Component of Application:**

Interested firms fulfilling the above requirement may submit the EOI with details of their eligibility and following documents:-

- a) The firm/firms shall give a declaration that they have not been banned or de-listed by any Govt. or quasi Govt. agency or Public Sector Undertaking.
- b) Background of the organization with respect to similar experience and brief description of projects recently undertaken in the relevant field.
- c) Details of organizational strength including manpower, other resources etc.
- d) Correspondence & communication address of the firm (firms) including the agents of the foreign companies in India.

- e) The firm/firms should furnish last 3 years (2009-10,2010-11 & 2011-12) audited balance sheet/ annual report) showing turnover, net worth etc. as certified by a firm of Chartered Accountants.
- f) The firm should submit documentary evidence in respect of PAN, Service tax, VAT NO., Registration certificate etc.
- g) Copy of registration certificate, ISO Certificate and other accredited agency certificates.
- h) Copy of the work orders and performance certificate/ job completion certificates in respect of Fuel measuring & monitoring equipment with (GPS) based solutions.
- i) A write-up on proposed methodology to take up the project.
- j) Any other details which firm feel relevant to carry out the present assignment.
- k) Name and details of the contact person (Mobile no., e-mail etc)

**13. Submission of EOI:**

- a. The submission of the Expression Of Interest (EOI) together with requisite documents in a sealed envelope clearly superscribing as “ EXPRESSION OF INTEREST (EOI) FOR SUPPLY, INSTALLATION, COMMISSIONING AND MAINTENANCE OF UNIFIED VESSEL TRACKING & MONITORING, FUEL MEASURING AND MONITORING SYSTEM “ shall be addressed to the Chief Engineer(P & M), Inland Waterways Authority of India, A-13, Sector-1, Noida, U.P-201301 by the intending firms in their own letter head and submitted by 15.00 hours on 28.06.2013 which will be opened on the same day at 16.00 hrs in the presence of representatives of intending bidders.
- b. IWAI reserve the right to accept or reject any or all EOI’s without assigning any reasons and no correspondence shall be entertained in this regard.

**14. Evaluation of the offers;**

Once the offer for EOI is received and opened on the specific date, same shall be evaluated by a committee constituted by the Chairman of IWAI. The selection shall be based on the marking system as the criteria mentioned under clause-15. After the initial evaluation each firm shall be given the opportunity to present its proposal covering the various information about the firm , its financial & technical capacity, technical manpower, similar work & current project, past performance, the approach & methology proposed for the system of IWAI, alongwith suggestion/ solution for a cost effective & maintenance free/ least maintenance system.

**15. Selection Criteria:**

The following parameter shall be considered for evaluation & short listing the eligible firm/firms to be eligible for submission of the tender.

<b>Sl.NO.</b>	<b>Description</b>	<b>Marks</b>
1	Organizational set up with the required infrastructure to execute the project, availability of the technical man power, financial performance & status etc.	30
2	Work order and performance certificates/ job completion	20

	certificates for the similar type of projects/work executed The certificates should be approx. 50% of total value of the work as indicated in sl. No. 10.	
3	A write-up on proposed methodology & approach.	20
4	Presentation on the proposed methodology and approach to the committee with satisfactory answer to the queries/doubt as raised.	30

Minimum 80 % of the above may be obtained for eligibility to be shortlisted. Only the shortlisted firm will be issued with tender document for submitting their competitive bids.

#### 16. Special Instruction:

The firm/firms may collect the further information if any on the fleet from the field Directors at the following addresses, (i) Shri N. Sivaraman, Director, IWAI, Kochi, at National Waterway Road, N.H. 47 Bypass, Kannadikkadu, Maradu, Ernakulam-682 304, Kerala. E-mail: [iwai\\_kochi@yahoo.co.in](mailto:iwai_kochi@yahoo.co.in), Tele/fax: 91 484-2389445, Phone: 91 484-2389804. Mob: 91944601447 (ii) Shri.S.V.K Reddy, Director, Inland Waterways Authority of India P-38 Garden Reach Road Kolkata-700 043 Fax No: 22395570 Mob: 09007107534 E-mail: [svkreddy@iwai.nic.in](mailto:svkreddy@iwai.nic.in) (iii) Arun Roy, Director, Pandu Port Complex, Pandu, Guwahati-781012, Assam, Fax-2570099, Mob: 0943501509, E-mail: [Arunroy1@yahoo.com](mailto:Arunroy1@yahoo.com), (iv) Shri. Gurmakh Singh, Director, IWT Terminal, Gaihgat P.O, Gulzarbagh, Patna-800007, Fax: 2630100, Mob: 08757513888, E-mail: [Gurmakh1234@gmail.com](mailto:Gurmakh1234@gmail.com).

The firm/firms may inspect the vessels/dredgers to appraise on the conditions, operational status and other relevant informations.

- Shortlisted firms will be issued the tender documents at a subsequent date to submit their quotation/rate etc.
- The work completion of the period shall be 6 months from the date of issuance of the work order.
- It is proposed to initially award the work including operation & maintenance (O&M) for the period of three years. However, the work may be extended for further period of 2 years depending upon the performance.

S. Dandapat  
Chief Engineer (P&M)