Request

for

Expression of Interest

Selection of Firms

for providing

Smartphone based Geospatial Technology Tool for Enhancing Monitoring & Execution capability of JMVP

For

'Capacity augmentation of navigational infrastructure of National Waterway-1' between Haldia to Varanasi - Allahabad (Jal Marg Vikas Project)

Date of Submission – 27st April 2017

Project Management Unit
Capacity Augmentation of the National Waterway – 1 Project (Jal Marg Vikas)
INLAND WATERWAYS AUTHORITY OF INDIA
(Ministry of Shipping, Government of India)
Head Office : A-13, Sector – 1, Noida - 201301

Phone : 0120-2544004, Fax : 0120-2543976 ; website: www.iwai.nic.in ; email : vc.iwai@nic.in

Expression of Interest

1. Inland Waterways Authority of India (IWAI), Ministry of Shipping, Government of India has applied for financing from the World Bank towards the cost of the Project "**Capacity Augmentation of the National Waterway – 1 (Jal Marg Vikas Project)**", and intends to apply part of the proceeds for consulting services.

2. The Inland Waterways Authority of India (IWAI) intends to engage a professionally qualified and renowned firm/agency to provide **Smartphone based Geospatial Technology Tool for Enhancing Monitoring & Execution capability of JMVP for their Capacity Augmentation program of National Waterways-I**

3. The Project Director, Project Management Unit, IWAI, invites eligible firms to submit their interest to provide services for "**Smartphone based Geospatial Technology Tool for Enhancing Monitoring & Execution capability of JMVP for their Capacity Augmentation program of National Waterways-I**

4. Firms interested in providing the solution, should provide information demonstrating that they have the required qualifications and relevant experience to perform the job requirements. Firms may associate with other firms in the form of a joint venture or a sub-consultancy to enhance their qualifications. The short listing criteria are:

    4.1 Consultant should have been engaged in conducting similar activities for the past 6 years – copy of Certificate of Incorporation to be submitted along with the EOI.
    Based on the needed app-side, portal-side, SMS-side, Tracker-side, and other needed details as prescribed in the TOR, the overall scope of works is as follows:
    - Implement the mobile app-based geospatial platform in IWAI in context of the World Bank-financed NW1 project;
    - Scale-up the platform's applicability to cover the majority of civil works undertaken by IWAI
    - Render the platform as an effective tool for monitoring the preparation, updating & Implementation of RAP Process & capturing Geo tag information of the progress of RAP (Resettlement Action Plan)
    - Render the platform as an effective Grievance Redressal Mechanism (GRM) for citizens to convey their feedback/complaints.

    4.2   The Firm should possess 5+ years' experience in designing / implementing / operationalizing geospatial Information & Communication Technologies (ICT) based data collection systems and project management in developing countries context;
     Must have experience implementing geospatial app-based systems in India;
     Experience in developing open-source -based platform that collects data from the ICT based data collection system for real-time

actionable analysis and displayed on a web-based analytics dashboard.

The Firm is expected to comprise of a team with qualifications in project management, software development, and training roles.

4.4   Qualifications and Experience Required

The firm is expected to possess the following functional and technical qualifications:

Functional Qualifications

1.Experience

    a. Should have completed at least Three projects involving implementation of geospatial ICT systems in developing countries in last Five years.

    b. Familiarity working with multilateral organizations, and government agencies in developing countries - ideally on a similar implementation project;

    c. Prior experience in conducting on-site training workshops with users on mobile- and online-based technologies;

    d. Prior experience in developing and implementing ICT platforms in developing countries will be a plus

2. Project Management

    a. User-centered system design and data science are integral components to the firm's implementation process;

    b. Lean, rapid and iterative development cycles are practiced;

    c. Competence in open-source based design methodologies

4.5   3. Technical Qualifications

    a. Superior software engineering skills, particularly in open source mobile and dashboard technologies;

    b. Experience in integrating mobile applications to open source cloud-based platforms using web frameworks and analytical tools

    c. Familiarity with customizing dashboards;

    d. Ability to create user-centered data visualization pages for enhanced data interpretation.

    e. Experience in setting up local and cloud-based server solutions

5.0   Firm should have a minimum financial turnover of USD 150,000 during any of the last 5 years – CA certified declaration for last 5 years to be submitted along with the EOI.

6.0   Consultant should be having a minimum of 25 employees on their payroll – declaration to be submitted. The firm must necessarily have the following essential staff with required qualifications and Skill set to undertake this project

    1: Project Manager

Skills: At least 6+ years' experience in Requirements Analysis, Information Architecture, UX, Front-end & Back-end Development. Also, at least 4+ years' experience in Project Management, Requirements and Change Management

2: UX Designer
Skills: At least 2+ years' experience UX, Visual Design, Front-end HTML/CSS
Familiarity with customizing dashboards;
Ability to create user-cantered data visualization pages for enhanced data interpretation.

3: Software Engineer (SE1)
Skills: At least 3+ years' experience in Technical Architecture, Front-end & Back-end Development, PHP Frameworks - Laravel, NoSQL Database, AngularJS, D3, Highcharts and other graph frameworks, Android Mobile Development. At least 2+ years' experience in Objective-C, Android, PHP, JavaScript, HTML, JAVA, Swift
Must have experience in integrating mobile applications to open source cloud-based platforms using web frameworks and analytical tools
Designed the database schema & technology architecture for at least two projects involving implementation of the ICT platform in a developing country;

4: Software Engineer (SE2)
Skills: At least 2+ years' experience in PHP, Kohana Framework, MySQL, Objective-C, JavaScript, C# . Must possess proficiency in web portal dashboard technologies development, demonstrated by 5+ years' experience in this field.

5: Quality Analyst (QA)
Skills: At least 3+ years' experience in Automated & Regression Testing Processes, MS Office Suite, Selenium and other automated testing suites
Experience working with testing frameworks that involve automation suites for regression testing and continuous integration for end-to-end testing;
Must be proficient in writing efficient test cases and documenting various testing scenarios and their results.

5. Expressions of interest must be delivered in a written form to the address below (in person, or by post or by e-mail)

Date of Submission of Proposal :- 27th April, 2017 by 15:00 hours (IST)

Envelope marked with :-
Expression of Interest for " <u>Smartphone based Geospatial Technology Tool for Enhancing Monitoring & Execution capability of JMVP for their Capacity Augmentation program of National Waterways-I between Haldia to Varanasi - Allahabad (Jal Marg Vikas Project)</u>

Address :-

Project Director (Jal Marg Vikas)
INLAND WATERWAYS AUTHORITY OF INDIA
(Ministry of Shipping, Government of India)
Head Office : A-13, Sector – 1, Noida – 201301

Contact Details:-

Phone : 0120-2544004, Fax : 0120-2543976 ;
email : vc.iwai@nic.in ; iwaipmuskp@gmail.com ; brajeshks.iwai@gmail.com

6. 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* dated January, 2011 ("Consultant Guidelines"), setting forth the World Bank's policy on conflict of interest.

7. A Firm or an individual Debarred by the World Bank in accordance with the anticorruption guidelines shall be ineligible for this Assignment in any form or way. A list of debarred firms and individuals is available at the Banks external website: www.worldbank.org/debarr.

8. A Consultant will be selected in accordance with the Quality and Cost Based Selection method set out in the Consultant Guidelines.

9. Further information can be obtained at the address mentioned above during office hours.

Instructions for submission of Expression of Interest:

1. Accomplished Expression of Interest (Application) must be submitted together with a Letter of Intent not later than 15:00 hours (IST) on 27th April, 2017. Documents in support of all qualification information shall be submitted with application. Proposal of EOI with qualification information shall be furnished on / before the due date of submission at the address mentioned above.

2. The Application shall be basis of drawing up a shortlist of eligible Consultants who will be invited to submit proposal for services required.

3. All Applications shall be submitted in English.

5. A Firm shall submit only one proposal. If a Firm submits or participates in more than one proposal, all such proposals shall be disqualified. This does not, however, preclude a firm to participate as a sub-consultant, or an individual to participate as a team member, in more than one proposal when circumstances justify and if permitted by the Request for Proposals.

6. The Application and all related correspondence and documents should be written in the English language. Supporting documents and printed literature furnished by Applicant with the Application may be in any other language provided that they are accompanied with translations in the English language. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Application, the English language translation shall prevail.

7. IWAI reserves the right to reject any Applications, without assigning any reasons thereof.

8. The Applicant shall provide all the information sought under this Qualification Document. PMU, IWAI would evaluate only those Applications that are received within the specified time and complete in all respects. Incomplete and/or conditional Applications shall be liable to rejection.

Guidelines for preparation of Expression of Interest

Following information shall be submitted:

1. Complete name of firm(s), date of establishment and type of organization whether individual, proprietorship, partnership, private limited company, public limited company etc.

2. Exact and complete corporate/registered/home office address, business address, telephone numbers, fax numbers, E-mail and cable address. For Consultant of foreign registry, indicate if there is any branch office(s) established in India with details in aforesaid manner.

3. If present firm(s) is the successor to or outgrowth of one or more predecessor firms, fresh name(s) of former entity (ties) and year(s) of their original establishment with details in aforesaid manner.

4. Present a brief narrative description of the firm(s). Kindly avoid submission of company brochures for the purpose description of the firm.

5. List of not more than two (2) principals who may be contacted by this Office.

6. Listed principals must be empowered to speak for him or for the firm on policy and contractual matters.

7. Organizational strength of Firm shall be given

8. Brief Terms of Reference - Annexure-I.

9. Application Form .. Annexure-II

(Project Director)

<div align="right">Annexure - I</div>

Assignment Title - Terms of Reference (TOR): Enhancing Monitoring & Execution capabilities of JMVP using Smartphone-based Geospatial Technology Tool for 'Capacity augmentation of navigational infrastructure of National Waterway-1' between Haldia to Varanasi - Allahabad (Jal Marg Vikas Project) of Inland Waterways Authority of India.

1. BACKGROUND

The Project:

- The Ganga-Bhagirathi-Hooghly river system from Haldia to Allahabad has been declared as National Waterway-1 (NW-1). When developed for use by modern vessels operating on dependable rights of way, NW-1 can reduce investment needs in rail and road infrastructure, promote greater complementarities in the economic strategies the riparian states, enhance intra-regional trade and, through increased economies of scale, significantly reduce transport costs for the benefit of the entire economy and India's global trade competitiveness.

- But an overall weak navigation infrastructure hinders a viable IWT on NW-1. The gamut of factors pertain to various civil, structural (such as non-availability of terminals, jetties, navigational locks, barrages, channel markings, bunkering facilities, etc.), communications, and hydrological constraints (such as non-availability of minimum river depths/channel widths across different stretches, numerous short radius bends, etc.).

- To overcome such constraints, Inland Waterways Authority of India (IWAI), under the Ministry of Shipping through the Jal Marg Vikas Project is planning to improve the navigability of the river Ganga between Allahabad and Haldia. To this end, the World Bank will be supporting IWAI in implementation of the 'Capacity Augmentation of the National Waterway –I' project.

Role of Information & Communication Technologies (ICT):

- To guide IWAI in effective project implementation; serve as a navigational instrument for barge operators; and provide a means for engaging citizens' participation, the role of Information & Communications Technologies (ICT) can be invaluable.

- Already, IWAI has begun implementing ICT-based River Information System (RIS) for NW1 in a phased manner (in the first phase, RIS has been installed to cover the stretch from Haldia to Farakka). RIS comprises of a combination of sensors (such as AIS, Radar, etc.) and software technology that can enhance real-time data transfer between mobile vessels and shore (base stations).

- However, civil/infrastructure works info (e.g. status of new jetty construction) is not captured through any structured digital means in IWAI and there is lax means for enabling citizens' participation. It is therefore needed to make available a mobile technology-based solution that can enable effective M&E and social accountability - which can consequently enable good governance and apply pressure, in real-time, on

contractors, service providers, and public officials to respond to issues afflicting project development and performance.

2. OBJECTIVES

To achieve the above, IWAI is seeking the services of an experienced Information Technology firm to implement an app-based real-time monitoring system that can help achieve the following:

i. Provide real-time information for enabling early identification of emergent issues in civil works and challenges in implementation, as well as production of instantaneous status reports.
ii. Increase transparency of the program by disseminating information through publicly accessible websites.
iii. Increase stakeholder participation and ownership of results by offering a mechanism for anonymous public feedback and discourse.

Specifically, the selected consultancy must ensure that the following key technical enhancements are made to the existing platforms:

o Business continuity in case App doesn't work some time

2.1. Required App features:

1: App to be compatible with both Android and iOS platforms

2: App needs to automatically capture GPS cords., date stamp, time stamp

3: Capability to capture data as per the dashboards exhibited in the Appendix section

4: App needs to have approval mechanism features (i.e., auto-approve reports, or approve via admin)

5: In case an active internet connection is not available, the App must be able to store pictures/ videos locally on the phone and upload those when user has internet connectivity.

6: The App must be able to locally store all pictures on phone.

7: App must be able to submit data even in weak mobile internet signal environment. It must also be able to transmit data via SMS using regular cell phone signal

8: Ability to provide captions to photos on app

9: Display thumbnails of images on app

10: Notification -if image not uploaded

11: App also sends version info to portal

12: App checks for newer version and self-updates.

13: Establish a one-time sign-in process so that user details are not always entered

14: The should have 2 versions: A *Pro* version having all functionality for registered users and even advanced features for the admin user. The other will be the *Lite*

version-- a stripped down, straight-forward app aimed at citizens to submit instantaneous reports.

15: Automatic data-syncing when app connects to mobile data signal

16: App should transmit user's location to the portal in real-time

17: Ability to capture (and transmit) images and videos

18: Ability to capture point-to-point geo-navigation features (including, route, altitude, time, speed)

2.2. Required Portal-side features:

1: The portal should display all reports -including issues, trackers, users' location on a geospatial basis

2: The reports themselves should consist of images (transmitted by user) or videos, data, and issue location.

3: To limit human intervention in work flow, incorporate within the platform the capability to automatically approve reports.

4: Through active collaboration with IWAI, customize the platform's website to render it more intuitive for both institutional users and ordinary citizens. This will involve tailorizing for a sophisticated and clean look-and-feel.

5: The platform admin should have the ability to modify webpage contents by himself.

6: Customized data analysis: Incorporate advanced data analysis systems (like 'Tableau') for data analysis and dashboard display.

7: The online dashboard must calculate and display parameters related to overall project implementation.

8: Incorporate a timing slider for better 'Before-After' visualization

9: Provide advanced search capabilities to locate/find particular report(s) on admin side

10: Provide If-else Business logic in form creation

11: Automatically re-orient images on admin side

12: Develop simple parameters related to the construction contractor's performance and display them online.

13: All visuals on the portal need to be watermarked with date, time, GPS stamps

14: Old reports, pictures, videos need to keep getting archived while the latest reports, pictures/ videos should be shown

2.3. Required SMS-side features

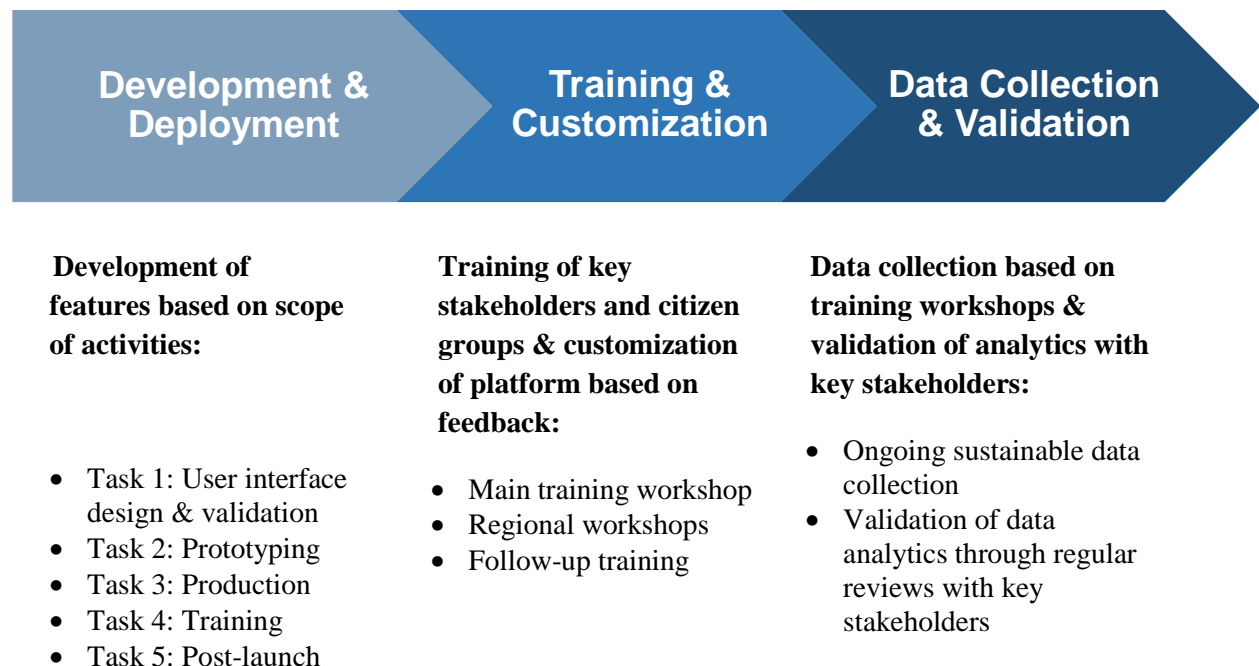The platform should have a dedicated SMS app which will have:

1: Capability of automatically submitting citizens' feedback to the portal through SMS

2: Capability of conducting SMS-based monitoring

2.4.   Other Required features

1: Data should be regularly and automatically backed-up on the server.

2: Provide auto notification options (via email/SMS) to specific project teams/individuals

3: In reference to the appendix, the platform should have the ability to accommodate monitoring/performance parameters as prescribed by any advisory agencies.

4: Render the ability to integrate with sensors/equipment that can measure volume of soil dredged

5: Render the ability to incorporate an additional module that monitors social aspects.

6: Host the platform on the cloud until further clarity is received from NIC on in-country hosting. Then upon, provide support to migrate the platform to in-country servers, if needed.

2.5.   Flow of Activities

The selected consultancy must undertake system development based on the following Flow of Activities schema:

Development & Deployment	Training & Customization	Data Collection & Validation
Development of features based on scope of activities:	**Training of key stakeholders and citizen groups & customization of platform based on feedback:**	**Data collection based on training workshops & validation of analytics with key stakeholders:**
• Task 1: User interface design & validation • Task 2: Prototyping • Task 3: Production • Task 4: Training • Task 5: Post-launch	• Main training workshop • Regional workshops • Follow-up training	• Ongoing sustainable data collection • Validation of data analytics through regular reviews with key stakeholders

2.6.   System Integration

Seamless Integration with SMS systems for data submission and citizens' feedback is integral to this project. The consultancy needs to also provide support for future integration with other systems via API linkages (or other suitable mechanisms).

2.7. Non-Functional Requirements – Scalability, Availability, Security

- **Scalability:** The system needs to be seamlessly scalable. In other words, there shall be no licensing aspects involved when expanding to more users (i.e., the platform must be license-free).
- **Availability:** The platform, and all its components, must be available and online 24/7.
- **Security:** Platform security must be in alignment with security best practices and a variety of IT security standards, including: • SOC 1/SSAE 16/ISAE 3402 (formerly SAS 70) • SOC 2 • SOC 3 • FISMA, DIACAP, and FedRAMP • DOD CSM Levels 1-5 • PCI DSS Level 1 • ISO 9001 / ISO 27001 • ITAR • FIPS 140-2 • MTCS Level 3

3. Scope of Services

The consultant shall have to carry out this assignment by undertaking the following tasks, as listed below.

TASK 1: USER INTERFACE DESIGN & VALIDATION

Undertake User Interface (UI) design based on the objectives and specific technical enhancements as mentioned above. The consultant should then validate the requirements and UI design with IWAI personnel.

TASK 2: PROTOTYPING

Sub Task A. Build enhancements to the platform based on operational workflows.
Sub Task B. Demonstrate enhanced system prototype to IWAI and the World Bank team, and get sign-off to launch into production.

TASK 3: PRODUCTION

Sub Task A. Test beta version system by involving IWAI project managers and Bank team members.
Sub Task B. Prepare launch-ready production system after undertaking the required testing/debugging.

TASK 4: TRAINING
The selected IT firm's engineers shall travel to India to conduct training sessions for the data managers, data collectors and other relevant personnel. The firm shall also organize a workshop targeted towards familiarizing community and citizen groups/representatives on leveraging the Smartphone ICT platform for purposes of citizen engagement.

Sub Task A. Conduct training for data managers, data collectors, and other technical personnel that will be involved in maintaining the system.
Sub Task B. Prepare a "*Go-Live* operational plan" and actively supervise system rollout.

Sub Task C. Conduct a workshop aimed at familiarizing citizen and community groups on harnessing the smartphone app for citizens' participation.

TASK 5: POST-LAUNCH

The selected consultant shall distill lessons learned that are applicable to national roll-out based on practical experience and prepare and hand over two complete set of operational and technical documentations for the project. Any operational or technical issue occurring in the field shall be resolved

4. Deliverables & Tentative Schedule

A] To achieve a robust, fully functional updated Taarifa platform for IIU (includes portal-side, SMS-side, app-side, and other needed updates) the following outputs are required:

- **iOS app (Lite & Pro version available on the app store)**
- **Android app (Lite version available on Google Play store)**
- **Web-based platform**

- **Working prototype hosted on staging server (5 months from date of start)**
- **After testing phase, validated working (i.e. Beta version) prototype hosted on staging server (7 months from date of start)**
- **After feedback and modification, launch-ready system hosted on staging server (9 months from date of start)**
- **Launch-ready system hosted on production server (12 months from date of start)**

The selected IT firm will continue to update, manage, and maintain the system throughout the duration of the contract on behalf of the Client.

B] Reports to be submitted during the course of this assignment include:

1. **Inception report: (2 weeks from date of start)** this should include introduction of all team members and tasks assigned to them and how each task is proposed to be carried out, the project quality assurance plan, technical approach, the methodology, the equipment, and the software(s) which the consultant proposes to use and proposal(s) to train the counterpart personnel.
2. **Milestone reports.** These brief reports shall cover the key activities carried out, invoices services pending with Client, and any specific problem encountered in carrying out the services, which may require Client Intervention.
3. **Final Report (9 months from date of start) which would contain inter alia**
   a. Implementation findings and in-depth review of the project lifecycle
   b. Key findings on user feedback from the implementation of tasks outlined in the inception report.
   c. Outline of next steps to enhance the system

4. **Training/Operational Guideline document (13 months from date of start)**
   This document shall stand as a comprehensive, but easily comprehensible instruction set detailing specific steps on applying and leveraging the platform effectively as a

GRM tool; Conducting M&E; and Engaging with citizens. Deliver updated versions with each milestone report. This document will be an updated version of the document that was provided during the previous contract.

The selected firm must conduct at least two workshop(s), either online or in-house, to impart training and familiarity to stakeholders, especially community groups, on how to use this platform as an effective reporting, M&E, and GRM mechanism. **(First workshop 2 months from date of start & second workshop 8 months from date of start)**

5.   Required Inputs for the Assignment

The proposed input for the key professionals is estimated to be **27 persons/months;** however the Consultant may propose additional input of key personnel, while only the specified below professionals will be evaluated in the proposals.

6.   Time frame for Completion of the Assignment

It is expected that the system design, testing, and development shall be carried out **within the first 12 months after the award of the contract**. During this time, the Consultant's key professional staff team may be required to spend upto 2 weeks on this assignment in India with necessary technical and engineering support from the head office of the firm. Upon completion of system development, the firm will be required to impart training activities (either in-person or through webex/Skype) focused on communities' engagement. The firm shall continue to operate, maintain, and host the platform until the duration of this contract

7.   Description of Roles within Firm

This project is multidisciplinary in nature. It requires a broad set of skills found in international development firms and technical skills found in software development firms. The firm's team should therefore constitute a mix of skills and experiences, which include international development and software development.

The Firm should draw heavily on its experience in designing ICT based data collection systems and project management to ensure the right system is designed and proper training is delivered;

The Firm will build an open-source platform that collect data from the ICT based data collection system for real-time actionable analysis and displayed on a web-based analytics dashboard.

The Firm is expected to comprise of a team with qualifications in project management, software development, and training roles. The firm must have the following essential staff with required qualifications to undertake this project:

1. **Business Analyst / Team Leader (BA / TL)**

   Skills:
   At least 6+ years' experience in Requirements Analysis, Information Architecture, UX, Front-end & Back-end Development

   - Led at least three projects involving implementation of the Argo/Taarifa ICT platform in a developing country;
   - Familiarity working with multilateral organizations, and government agencies in developing countries - ideally on a similar implementation project;
   - Prior experience in conducting on-site training workshops with users on mobile- and online-based technologies

2. **Senior Engineer**

   Skills:
   At least 3+ years' experience in Technical Architecture, Front-end & Back-end Development, PHP Frameworks - Laravel, NoSQL Database, AngularJS, D3, Highcharts and other graph frameworks, Android Mobile Development

   - Designed the database schema & technology architecture for at least two projects involving implementation of the Argo/Taarifa ICT platform in a developing country;
   - Experience working with the intricacies of managing open-source technologies;
   - Experience setting up and managing software engineering teams - enforcing best practices of software development including Continuous Integration, Version Control & End-to-End testing

3. **UX Designer**

   Skills:
   At least 2+ years' experience UX, Visual Design, Front-end HTML/CSS

   - Familiarity with customizing dashboards;
   - Ability to create user-centered data visualization pages for enhanced data interpretation.

4. **Project Manager**

   Skills:
   At least 4+ years' experience in Project Management, Requirements and Change Management

   - Expertise in user-centered system design and data science;
   - Expertise in lean, rapid and iterative development cycles;
   - Competence in open-source based design methodologies

5. **Software Engineer (SE1)**

   Skills:
   At least 2+ years' experience in Objective-C, Android, PHP, JavaScript, HTML, JAVA, Swift

- Must possess superior software engineering skills, particularly in open source mobile and dashboard technologies;
- Must have experience in integrating mobile applications to open source cloud-based platforms using web frameworks and analytical tools

6.   Software Engineer (SE2)

Skills:

At least 2+ years' experience in PHP, Kohana Framework, MySQL, Objective-C, JavaScript, C#

- Must possess superior software engineering skills, particularly in open source mobile and dashboard technologies;
- Must have experience in integrating mobile applications to open source cloud-based platforms using web frameworks and analytical tools

7.   Quality Analyst (QA)

Skills:

At least 3+ years' experience in Automated & Regression Testing Processes, MS Office Suite, Selenium and other automated testing suites

- Experience working with testing frameworks that involve automation suites for regression testing and continuous integration for end-to-end testing;
- Must be proficient in writing efficient test cases and documenting various testing scenarios and their results.

Domain Knowledge/Experience:

It is desired that the firm possess domain experience in designing technology solutions related to transport systems, especially in context of monitoring both, civil works and point-to-point navigation in this sector. Domain experience in this realm includes undertaking previous work related, but not limited to: Designing software features that allow for real-time viewing of navigation tracks (such as AIS tracks) on an online system; Experience in creating user-defined rules that can trigger auto notifications/alarms; Enabling communication systems with vessels using methodologies such as IVR/SMS; Capability to store/archive data for a period of at least 1 year. IWAI can provide the firm with more in-depth domain-related details, if needed.

Estimated proposed person-months input of key professional staff – Months

BA/TL	6.0
Senior Engineer	5.0
UX	3.0
Project Manager	4.0
SE1	3.0
SE2	3.0
QA	3.0
Total Estimated Person/Months	(27.0)

8. Web Application development for Land Acquisition and R&R :

The web application serve the following purposes:

- Interface for item-wise updating of Social Impact Assessment implementation, land acquisition procedures.
- Interface for capturing details of title holder , their compensation & rehabilitation, financial entitlement of different social categories (SC, ST, Gen, BPL, Sr.Citizen etc.)
- Interface to update compensation, nature of affected assets and entitlements at household level.
- Interface for updating details of Land purchase negotiation (Please provide detailed work flow to collect information on negotiated settlement).
- Document management with scanned file attachments and import facility for existing information to the system.
- Interface to update RAP measures on livelihood
- GIS Maps shall be used to display only Geo-Tagged Images over it.

Mobile App

Concerned authorities involved in implementation of RAP processes shall use the required device to monitor the preparation and implementation of RAP process and to capture relevant information at various stages.

The application will support the following facilities:

A. Non-Titleholder (Workflow Annex 1) .

- o Verification of PAHs – Photo capturing facility with Lat-Long coordinates
- o Photo capturing facility for the support documents of PAHs who are title-holders & Non-title holders (if any).
- o Consultation meeting minutes capturing with date and photo
- o Post ID issuance to the PAHs, along with photo capturing facility
- o Photo capturing facility for structures and trees marked at site
- o Photo capturing facility for measurement and actual dismantling of the structure
- o Photo & date capturing facility for final settlement/handover to land losers as a R&R assistance
- o Photo & date capturing facility for consultations held with PAHs regarding relocation or rehabilitation
- o Photo & date capturing facility for CPRs relocated/rehabilitated
- o Photo & date capturing facility for Relocation of houses for PAFs
- o Google Maps shall be used to display only Geo-Tagged Images over it.
- o In case the mobile network service is not having coverage, where relocation or consultation is to take place, for such case, Mobile Application shall be developed in a way that will enable OFFLINE data entry and uploading of geo-tagged photographs if any. Such data and geo-tagged photographs shall be queued and uploaded as soon as the network connectivity is restored.

- **Workflow and details to be captured: are stated here under:-**

- **Workflow and details to be captured:**
  - o

Task . No.	Task details	Field For Off line/Da sh Board	Field For Mobile Applica tion/ons ite	Inputs/Parameters/Att ributes to be recorded for offline/Dashboard/MIS	Affected PAHs / PAFs number	Additional Fields to be added
1	**Land Required**					
1a	Private	√		Area in Ha		
1b	Govt.	√		Area in Ha		
	Sub Project -VNS					
	Sub –Project (SBG)					
	Sub –Project (Farakka)					
	Sub project – Kalughat					
	Sub project –Ghazipur					New project sites if any
3	**Verification of PAHs**		√	- Photo of asset with latitude and longitude - Category of Asset (Title Holder, Encroacher, Squatter) - Type of Title Holder (Agri land, Shop , House and Shop-cum-house) - Type of Encroacher (Agri land, Shop , House and Shop-cum-house) - Type of Squatter (Agri land, Shop , House and Shop-cum-house) - Social category (SC, ST, Others, WHH, PC, Senior Citizen)		Agriculture, Residential, commercial , tenants and other Residential, commercial , tenants and other
4	ID Card of PAHs prepared	√		Yes/No, If Yes, link to Photo ID data base		
5	ID Card distributed		√	Yes/No, If Yes, Date		
6	RAP materials distributed among PAHs		√	Yes/No, If Yes, link to photo of handing over of booklet		
7	Consultations held with regard to RAP (dissemination of information, awareness generation, entitlements, etc)		√	3 rounds, each with date at site and photo		

Task. No.	Task details	Field For Offline/Dash Board	Field For Mobile Application/onsite	Inputs/Parameters/Attributes to be recorded for offline/Dashboard/MIS	Affected PAHs / PAFs number	Additional Fields to be added
8	**Structures marked at site**		√	Yes/No, Date, photo with number		Residential, Commercial, Others
						Residential, Commercial, others
9	Measurement of structures to be dismantled		√	Yes/No, If Yes, date, photo with ID number, typology (Permanent, semi-permanent and temporary (kutcha), measurement and area (sqm), Geo- tag		Residential, Commercial, Others
						Residential, Commercial, others
9a	CPR (measurement and dismantling)		√	Yes/No, If Yes, date, photo with ID number Geo-tag		
10	**Valuation of structures completed**	√		Yes/No, If Yes, date, link to valuation sheet		Residential, Commercial, others
						Residential, Commercial, others
11	**Micro Plans prepared and submitted to PA for approval**	√		Yes/No, If Yes, date, link to Micro plan sheet		
12	**Micro Plans approved by the PA**	√		Yes/No, date, If Yes, link Micro plan approval sheet		
13	**Bank accounts opened**	√		Yes/No, If Yes, link with ------------- sheet		
14	**R&R assistance disbursed**		√	Yes/No, Proof or RTGS receipt		
15	**Structures dismantled**		√	Yes/No, If Yes, Date, Photo		Residential, Commercial, others
16	**PAFs relocated into new houses**		√	Yes/No, If Yes, Date, Photo Geo-tag		
17	**CPRs relocated/ rehabilitated (including all facilities as per Schedule 3)**		√	Yes/No, If Yes, Date, Photo Geo-tag		
18	**Relocation of displaced structures**		√	Yes/No, If Yes, Date, Photo Geo-tag		
20	**Identification of PAPs for training**	√		Yes/No		
21	**Training provided to PAPs for restoration of livelihood**	√		Yes/No		

Appendix

Needed Monitoring/Performance Monitoring Benchmarks

Site Progress Report

Date:
Cycle No.:

Package No. :
Contractor:

S.No	Component	Unit	Total Scope (INR)	Planned Physical Progress (INR- CR)			Physical Progress Achieved (INR- CR)			Planned Financial Progress (INR- CR)			Financial Progress Achieved (INR- CR)			Remarks (if any)
				Till Last Cycle (a)	This cycle (b)	Till Date (c=a+b)	Till Last Cycle (d)	This cycle (e)	Till Date (f=d+e)	Till Last Cycle (a)	This cycle (b)	Till Date (c=a+b)	Till Last Cycle (d)	This cycle (e)	Till Date (f=d+e)	
1	Site Grading	INR										0			0	
2	Maintenance Dredging	INR										0			0	
3	Berthing Structure	INR										0			0	
4	Construction of Retaining Structure	INR										0			0	
5	Development of Stockyard	INR										0			0	
6	Construction of Building	INR										0			0	
7	Construction of Storage Shed	INR										0			0	
8	Const. of Roads and Internal Area	INR										0			0	
9	Installation of Navigation Aid	INR										0			0	
10	Other Misc. Works	INR										0			0	

Current Works (Brief Description)

Equipment Status

S.No	Equipment	Planned at site	Actual
1	Excavators 200 & above		
2	Dewatering Pumps of 10 Hp		
3	Air Compressors		
4	Dumpers		
5	Dozers		
6	Water Tankers		
7	Shovels/Loaders		
8	Transit Mixers		
9	Tippers		
10	Batching Plant		
11	Drilling Jumbo		
12	Wagon Drills		
13	Vibratory Roller		
14	Mechanical/Hydraulic Grader		
15	Stone Crusher Plant		

Key Personnel Status

S.No	Key Personnel	Planned at site	Actual
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Labour Deployment Status

S.No	Labour Type	Planned at site	Actual
1	Skilled – Operators		
2	Carpenters		
3	Masons		
4	Bar benders		
5	Electricians		
6	Semi Skilled		
7	Un Skilled		
8	others		
9	others		
10	others		

Issues/ Concerns :

Land / Work Front -
Clearances / Approvals -
Engineering Drawings -
Others -

Note: Details to be updated on weekly basis based on the actual progress on site.
Kindly add additional rows in sections wherever required.

Site Progress Report

Package No. :
Contractor:

Date:
Cycle No.:

HSE Report

S.No.	Description	For the Current Cycle	Cumalative	Remarks (if any)
1	No. Safety Observations Identified			
2	No. of Near Miss			
3	Loss time Injury Frequency Rate			
4	Medical Treatment Incident Frequency rate			
5	No. of fatalities			
6	Lost work days			
7	Total Manhours			
8	Safe Manhours			

Quality Report

S.No.	Description	For the Current Cycle	Cumalative	Remarks (if any)
1	No Of Non Conformance (NC) Issued			
2	No of Non Conformance (NC) Closed			

Note:- *Details to be updated on weekly basis*

9. **Application Submission Format ..**

   Kindly submit & provide the desired information as per attached format - as per Annexure-II attached

   *****

Annexure - II

Firms Letter Head

Reference :-	date:-

To,

Project Director

IWAI – Jal Marg Vikas

(Ministry of Shipping , GOI)

A – 13, Sector – 1, Noida -201301

Subject <u>**Smartphone based Geospatial Technology Tool for Enhancing Monitoring & Execution capability of JMVP for their Capacity Augmentation program of National Waterways-I**</u>

IWAI Reference :-

Dear Sir,

Refer your Expression of Interest ………………

We are pleased to enclose our credentials for the subject cited assignment as per your requirements listed at Para 3 (a through d).

SL.NO	Description of Documents	Documents required to be furnished	Yes / no	reference
1	Name of the Organization	*Copy of Certificate of Incorporation.*		
	Date of Establishment			
	Date of Commencement of Business			
	Type of Organization – Legal Status			
	Nature of Business			
	PAN No			
	Service Tax Registration No			
	TAN No			
	Exact & Complete Address			
	Telephone / Fax numbers.			
	E-mail and cable address.			
	Present a brief profile - narrative description of the firm(s)..	*Kindly avoid submission of company brochures for the purpose description of the firm*		
	Organizational strength of the Firm			
	Key persons .. 2 principals with contact details to be Contacted by IWAI.			
1.1	EOI Submitted as Sole Applicant or Joint Venture			

	Details of Joint Venture Partner		*If yes, details of JV Partner similar to 1 above*		
2	For Firms of **Foreign registry,** indicate if there is any branch office(s) established in India with details in aforesaid manner		*If yes, details similar to 1 above*		
3a	Consultant should be engaged in conducting similar activities for the past 5 years		*Details of relevant Engagement,*		
3b	Consultant should have a minimum financial turnover of USD 250K during any of the last 5 years	2016-17	*CA certified declaration for last 5 years.*		
		2015-16			
		2014-15			
		2013-14			
		2012-13			
3c	Consultant should have completed 3 (three) such similar / related work during the last 5 years. Involving Implementation of Geospatial ICT System.		*Kindly Provide following details toward completed works.* • *Client's details* • *Scope of work* • *Date of commencement,* • *Date of completion,* • *Synopsis of the Projects (relevant certificates of Commencement & completions should be enclosed)*		
3d	Consultant should be having a minimum of 25 employees on their payroll		*Declaration to be made by company HR*		
	Profile of the Persons likely to be deployed for this Assignment, with at least experience mentioned against each person		*Project Manager ➔ 6+ years* *UX designer ➔ 2+ years* *Software Engr SE1 ➔ 3+yrs* *Software Engr SE2 ➔ 2+yrs* *Quality Analyst QA ➔ 3+yrs*		

Hope you will find the same in line with your requirements.

Signature & Name of the Consultant
Date & Seal

Certificate
This is to confirm & certify that the information furnished with this Expression of Intrest (EOI) are true & Correct and are not debarred by the World Bank.

Signature & Name of the Consultant
Date & Seal

Enclosure :-
As listed here under:-