

**Expression of Interest/Call for Proposal**  
**BIHAR STATE DISASTER MANAGEMENT AUTHORITY**  
**(DISASTER MANAGEMENT DEPARTMENT)**

Government of Bihar

**Inviting Expression of Interest for the Survey of 'Laghu Bandh' (also known as Zamindari Bandh) existing in all the 38 Districts of Bihar.**

- This Expression of Interest and Call for Proposal is issued by the Bihar State Disaster Management Authority (BSDMA) to obtain proposals from reputed and registered survey agencies/firms to enter into a contract for carrying out field survey of all existing 'Laghu Bandh' (small flood protection embankments) which were constructed by Zamindars of past days as well as by groups of local people. Such embankments were mainly known as Zamindari Bandh or Maharaji Bandh constructed to protect the villages from flood as well as to protect the 'Ahars' from over spilling in all the 38 Districts of Bihar.
- Considering the importance of issues, BSDMA seeks the services of renowned survey agencies/firms for carrying out a detailed field survey of these Laghu Bandhs (Zamindari Bandhs) including the identified and listed 374 Laghu Bandhs (Zamindari Bandhs) across the 38 districts of the Bihar State. The detailed survey would broadly include the length, top width, base width, height, free board with respect to HFL as informed by local people, cross-section @ 5 metre of its longitudinal length and overall strength with photographs (with GIS Mapping).
- This will be done for all such Laghu Bandhs (Zamindari Bandhs) constructed in the past and recently under poverty alleviation scheme 'MGNREGA' or any other such associated programs. The field survey plan will be inclusive of collecting relevant historical data, such as (i) year of construction, (ii) past history of any breach and damage due to flood, for every 'Laghu Bandh', (iii) any maintenance protocol.
- **Pre bid conference:**  
 In response to this advertisement of EoI regarding the proposal under subject, **pre bid conference of potential desirous bidders will be held on 20th September, 2017 in the conference hall of BSDMA at 12 PM.**
- Detailed bid document, ToR, terms and conditions can be accessed from the website [www.bsdma.org](http://www.bsdma.org) or one can visit the office/or contact the undersigned Sri Ajit Kumar Samaiyar, Sr.Advisor, Environment and Climate Change, e-mail: [ajitsamaiyar@bsdma.org](mailto:ajitsamaiyar@bsdma.org) during any working day.
- The Technical bid and financial bid should be submitted in a sealed envelopes separately and must reach the office of BSDMA to **Secretary, Bihar State Disaster Management Authority (BSDMA), 2nd Floor, Pant Bhawan, Patna -800001, on or before 22 September, 2017 latest by 05:00 pm.**

  
 Secretary,

Bihar State Disaster Management Authority (BSDMA),

**BIHAR STATE DISASTER MANAGEMENT AUTHORITY  
(DISASTER MANAGEMENT DEPTT.)**

2<sup>nd</sup> Floor, Pant Bhawan, Patna -800001  
Phone No.-0612-2522032, Fax No.- 0612-2532311  
Website- [www.bsdma.org](http://www.bsdma.org)

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This Expression of Interest and Call for Proposal is issued by the Bihar State Disaster Management Authority (BSDMA) to obtain proposals from reputed and registered survey agencies/firms to enter into a contract for carrying out field Survey of all existing 'Laghu Bandh' (also known as Zamindari Bandh) constructed to protect the villages from flood as well as to protect the 'Ahars' from over spilling in all the 38 Districts of Bihar.

**Background:**

The State of Bihar has been mainly dependent on Agriculture since ancient days. In this State there are several perennial and non-perennial small and big rivers flowing in different parts of the State which has been the source of irrigation nurturing varieties of crops and plants. But during monsoon these rivers used to create havoc by flooding the agricultural land and damaging the crops. In this background and as per the need, small flood protection embankments were constructed by Zamindars of those days as well as by groups of local people. Such embankments were mainly known as Zamindari Bandh or Maharaji bandh, which proved to be the backbone of flood protection in many districts of Bihar.

After the independence and abolition of "Zamindari Pratha", the ownership of these embankments came into the hands of the State Government, but for their maintenance no full-proof arrangements could be done. This resulted in dilapidation of these embankments day by day, though, in the light of its need, its usefulness is still intact.

Hence, Revenue & Land Reforms Department, which was the owner of these embankments officially transferred to Water Resources department in February 2006 for its proper



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management and maintenance under their exclusive technical background and within their budgetary allocations. However, the ownership of these embankments remained with Revenue and Land Reforms Department.

Water Resources Department has identified 374 such Zamindari embankments (list enclosed) which has been renamed as Laghu Bandh by the State Government for its renovations in four phases. Later on State Cabinet in its meeting dated 10.12.2013 passed a resolution for formation a core network of such Zamindari (Laghu) embankments for its renovation, maintenance, repair and construction. Further to it, another cabinet resolution dated 26.08.2014 it was resolved that apart from listed 374 Laghu Bandh, all such Laghu Bandh (Zamindari Bandh) shall be taken care of by the Water Resources Department for its renovation and protection by anti erosion works, and during flood period these would be protected by flood fighting works.

The list of the 374 Laghu Bandhs (Zamindari Bandhs) taken up for its renovation by the Water Resources Department is being annexed.

Considering the above-cited background, BSDMA seeks the services of renowned survey agencies/firms for carrying out a detailed field survey of these Laghu Bandhs (Zamindari Bandhs) including the identified and listed 374 Laghu Bandhs (Zamindari Bandhs) across the 38 districts of the Bihar State. The detailed survey would broadly include the length, top width, base width, height, free board with respect to HFL as informed by local people, cross-section @ 5 metre of its longitudinal length and overall strength with photographs.

#### **Terms of Reference (ToR):**

##### **1. Introduction**

Bihar is one of the fastest growing states of India, both economically and technically .However, the recurrent nature of the problem of floods are devastating to Bihar's economy and undermine poverty alleviation efforts, often retarding its growth procedure. Floods are an especially major problem in the 28 flood prone districts out of 38 districts of Bihar, which not only affect lives, livelihoods, and productivity and security of existing investments, but are also proving to be a disincentive for additional investments in Bihar. In recent years it has been found that erratic

behaviour of the rainfall due to climate change scenario is causing floods in non flood prone districts also, threatening and sometime breaching the 'Laghu Bandhs'.

## **2. Objective of Consultancy**

The objective of this consultancy is to collect precise status (ie length, top width, base width, height, free board with respect to HFL as informed by local people, cross-section @ 5 metre of its longitudinal length and overall strength with photographs) of all the existing 'Laghu Bandh'(also known as Zamindari or Maharaji Bandh) in all the 38 districts of Bihar, including the identified 374 'Laghu Bandh'(list enclosed) by the Water Resources Department, Govt of Bihar. This will be done for all such embankments constructed in the past and recently under poverty alleviation scheme 'MGNREGA' or any other such associated programs. The field survey plan will be inclusive of collecting relevant historical data, such as (i) year of construction, (ii) past history of any breach and damage due to flood, for every 'Laghu Bandh', (iii) any maintenance protocol.

## **3. Scope of Consultancy**

The Consultant's services will be to: (i) Prepare a survey plan along with selection and fixation of additional Bench Marks, (ii) Carry out the proposed field survey using modern and accurate levelling instruments, (iii) Prepare a detailed data sheet for each 'Laghu Bandh' as per the objective, (iv) Define the type and permeability of the soil of the sides and bottom of drainage systems, (v) Suggestions, methods to improve impermeability and increase of water retention capacity, (vi) Suggest procedures for updating data on requisite frequency.

### **(i) Preparation of survey plan and selection and fixation of additional bench marks:**

The various activities in Task I include review of current methodology and approach of ground survey with all pros and cons. The consultant has to do the reconnaissance survey of the area of interest by visual observation supported with the high resolution satellite imageries to collect information and prepare a survey plan to finalize the complete sequence of working, establishment of control pillars and submitted with the Inception Report on appropriately scaled index maps. The consultants are required to select appropriate SoI GTS (Great Trigonometrical Survey) bench mark from the existing one and prepare a table of both the GTS benchmark and



additional established bench marks for the whole survey area. This survey plan would also reflect to ensure survey for timely job completion with desirable accuracy as per design norms using the most suitable latest modern technology. The consultant would also prepare a report that will consist of the project appreciation, detailed scheduling of micro level activities, work output and critical man power deployment schedule, Performance for data collection, identification of social and environmental sensitive areas, key plan of the area, if needed.

**Outputs:**

Inception Report reflecting Task 1 assignment and findings, Map and Table of Benchmarks, methodology to be used in conducting the survey approach, including process report of consultations and actions taken.

**(ii) Carry out survey using modern and accurate levelling instruments:**

The details activities under this Task would include:

- a) Preparation of survey plan and selection and fixation of additional Bench Marks. There are many benchmarks, established by Survey of India in the area. The consultants are required to select appropriate benchmarks from the existing one, extend to survey area, validate for accuracy and reliability, establish additional benchmarks, erect Musto type permanent benchmarks as per SOI and CWC norms and label them properly for future use. They are required to prepare a table of Geographic co-ordinates and elevation of these benchmarks for storage as well as future reference. **A work plan in map form shall be prepared before conducting actual benchmark survey so that Field officers (of WRD) could check that the objective of such a detailed survey is fully met.** The consultant would establish the above mentioned bench mark throughout the survey area in a manner that the detail survey for cross section could be initiated from any point to any point, drawing reference level from a nearby benchmark. This uniform distribution of pre-checked and established benchmark will also help in keeping "closing errors". Control Permanent Structure will have to be erected for primary BM as per standards laid out in survey manuals and secondary benchmarks may be marked on permanent structures like bridge piers, HT transmission line poles, culverts etc. French (Seno Markers) pegs may be

used wherever a permanent structure is not available. In general a concrete pillar of 2 meter length, buried 1.5 meter, would be sufficient but a different and more suitable design may be proposed by the consultant if found to be more appropriate for this project area. Markings on concrete structures may be slightly engraved and those on iron/steel structures may be painted with high quality paint. This exercise is basically to ensure easy access by future missions visiting the area for re-survey purposes. The drawing of layout plan would be prepared in ArcGIS showing nearest River Plan, Cross-section, all structures, reference points and other salient features along with the river and Flood plain.

- b) Carry out Cross-section Survey preferably using modern technology like DGPS linked ETS Survey Methods supported with the Total Station and Auto Level instruments for the development of an accurate and realistic cross-section. The consultants are free to select another method of survey but the primary objective of the client should be fulfilled. The details of topographic and X-section survey would include :

- The levels on each cross-section would be recorded at suitable lateral intervals of approx 5 m depending upon locations of breaks of slope. All breaks of slopes such as embankment toes, top edges, berm, river bank, river terraces (if any) etc. must be recorded. The section should be nearly perpendicular to the embankments. Start and end points of each section has to be marked clearly and precisely on a detail base map of the area under study. The terrain under question is practically flat with little highs and lows but this subtle difference in elevation is of utmost importance hence care must be taken to record such changes. This requires an accuracy of  $\pm 5$  cm. During surveys it is required to collect information on structures such as cross-drainage works, spurs, river training works, protection works, road crossings, bridges, anti-flood sluice gates etc., with associated digital photographs with GPS information for each. Pertinent information such as location, design drawings of these structures as available from the different agencies, measurements of visible dimensions, current status (working, damaged, choked, repairable or not) should be recorded. All information, spatial in nature, should be located on map with appropriate symbols/notations in Arc GIS format. Any other relevant features, natural or man-made, found in the survey area shall be surveyed and documented. **Water Level of the nearby river, if any, during survey period with time and date must be recorded**



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- The survey should be carried out by selecting observation points very carefully, so that at no occasion any point or ground at which ground slope change is left unmarked and its level not taken. The observation points should be such that the curves, slopes, cross section, L-section developed clearly and sufficiently reflect the relationship with general terrain and ground conditions.
- **The survey team shall capture and integrate digital photographs at appropriate resolution to reflect the status of all 'Laghu Bandh' assets and related infrastructure in the survey domain.**

### **Outputs:**

Three hard copies and two soft copies (in MS-Word/ Excel/ ArcGIS format) of detailed report containing following contents shall be submitted:

1. Detailed methodology with detailed technical description and accuracy of instrument used, site selection of all control point with justification, Photographs and brief notes on control points in UTM, WGS 84 projection system should be given. The desired output of the survey would cover all technical guidelines issued by the Ministry of Environmental and Forests, Govt. of India
2. Drawings prepared in Arc GIS showing River Plan, Cross-section, Gauge location, all structures, reference point, Road/rail bridges, H.T. line etc with related parameter available at site and other salient features as directed by the Field Engineer (in charge WRD) along the River. These drawings would also cover list of the Streams etc with the chainage and bank.
3. Prepare plan for conducting survey on the basis of using the most suitable latest modern technology to ensure speedy survey for timely job completion with desirable accuracy. All topographic data should be acquired, stored and processed in a geo-referenced manner in user friendly standard format that can be accessed both by CAD programs such as Auto CAD and GIS programs such as Arc View, Geo Media or Map Info.

The following administrative information will be collected from the respective field:

- Name of the 'Laghu Bandh'
- Start and end point of the 'Laghu Bandh'
- Any Ring Bandh off taking and joining the embankment.
- Name and location of offices of Chief Engineer (CE), Superintending Engineer (SE), Executive Engineer (EE), Sub-Divisional officer (SDO) and Junior engineer (JE) under whom embankment/structure is maintained.
- Freeboard, Natural Soil level (NSL) and Highest Flood Level (HFL).

**The consultant is required to elaborate entire process of survey from preliminary planning till data entry and visualization in a document. The document shall also elaborate procedures for re-survey and update survey in the area.**

#### **4. Responsibilities of the Client:**

- a. Provide letter of introduction for visit to WRD and other GOB offices.
- b. Provide access to confidential data (Topo-sheets etc) in secure environment, whenever needed.
- c. Facilitate access to field offices for data collection.
- d. The client shall assist in providing the traced copies of revenue maps pertaining to the selected areas. However, other documents records and map sheets required in this project will be procured by the consultants at their own cost. The client will assist the consultants in procurement of desired documents from the various state agencies; if required.
- e. The client shall provide letter of authority to obtain benchmark from Survey of India.
- f. The client shall coordinate the activities, and provide necessary instructions at appropriate time to avoid any disturbance and loss of time for carrying out the assignment.
- g. Notification for entry to the land for surveying & authorization letter to civil authorities shall be given to the consultants.
- h. Any other facilities mutually agreed upon by consultant and the client.

#### **5. Responsibilities of the Consultant**

- (a) **The Consultant shall conduct and complete the consultancy as per the requirements of the terms of reference. The Consultant shall deploy necessary resources to collect all 'Laghu Bandh' related data from concerned agencies including WRD, Patna to prepare survey plans.**



(b) The consultant will submit the draft final report of the survey work along with a report of 20% random quality check done by a competent third party (selected in consultation with the client) to validate the surveyed data duly verified by the concerned Field officer.

#### 6. Reports and Deliverables:-

The activities described earlier and the outputs described below shall be completed within a period of six months with key reporting requirements as follow:

<u>Reports Covering</u>	<u>Time /Month</u>
<b>1. Inception Report:</b> Map and table of existing & newly fixed Benchmarks, methodology to be used in conducting the surveys and training program for the officers of the WRD	By the end of first month. (Nov.2017)
<b>2. Draft Final Report:</b> Detailing survey outputs, maps, digital files, photographs and description of the work carried out.	By 7 <sup>th</sup> month.(May 2018)
<b>3. Final report:</b>	By 8 <sup>th</sup> month (June 2018)

The reports will be reviewed by a High Level Review Technical Committee set up by WRD, Bihar / BSDMA and would be consisting of members from WRD/BSDMA, Bihar. The Review Committee will provide review and approval report within 15 days after report submission by the Consultant.

#### 7. Eligibility Criteria & Conditions

1. The agency should be registered in India and not blacklisted by central/state government departments or agency. An affidavit to this effect shall be furnished with the expression of interest.
2. The agency should have experience of minimum 3 years in the relevant area as on 31 March, 2017.
3. The agency should have already successfully completed atleast one similar project of not less than 50 lakhs in any one year with last 3 years.
4. The agency or any of its partners (if it is in consortium) should not have been declared insolvent.
5. The consultant should submit the completion certificate of the project accomplished.
6. The agency should not have been penalised for delay in completion of work.
7. Applicants must submit their proposal in two parts. The first part will contain the Technical Proposal. The second part will contain the Financial Proposal.

8. The Technical Proposal containing **name and complete contact details with address, phone numbers and E-mail ID** of applicant agency (Lead Agency in case of a consortium) should be kept in a sealed envelope marked "**Technical Proposal**". The Financial Proposal should be kept in a separate, sealed envelope marked "**Financial Proposal**".
9. The two sealed envelopes should then be kept in one bigger sealed envelope super scribed with the wordings "**To be opened by Authorised Person only**" and this Envelope should be clearly marked "**Proposal for survey of 'Zamindari Bandhs (Laghu Bandhs)'**". The applicant agency should clearly indicate its **name and complete contact details with address, phone numbers and E-mail ID** on the outer bigger envelop.
10. The Technical proposal will have the detailed work plan of the survey as per the given ToR.
11. The Approach and Methodology for conducting the survey should be detailed out which will showcase the understanding of the applicant on the requirements of this notice.
12. The agency is also required to indicate their preference for number and names of districts where they will like to take up the survey of **Zamindari Bandhs**. BSDMA, however reserves the right to allocate any district(s) to the selected agency or agencies irrespective of the preference indicated.
13. The applicant agency is also required to provide the details of the key personnel (who are proposed to be deployed on the project) and their respective competencies and contributions for these assignment- Instruments, tools and tackles.
14. The details of the Team Structure should be laid down in the technical bid with CVs of all the listed personnel for this assignment.
15. The applicant agency is also expected to showcase past experience in making a plan.
16. Agencies having prior work experience of similar nature in Bihar will be preferred based upon, their expertise and satisfactory execution of the same.
17. The Contract may be terminated with one month notice subject to Delay/ Unsatisfactory performance in the work.

**Note:**

- A. This Expression of Interest and Call for Proposal is illustrative in nature and all narrations are intended to be used by the applicant as a preliminary background explanation. This does not necessarily contain all relevant information and the BSDMA reserves the right to amend its requirements or the information contained in this notice at any time during the selection process.
- B. The BSDMA offers no warranties in regard to the information contained in this notice and shall not be liable for any loss or damage as relates to this notice for any applicant, potential applicant or any other third party arising as a result of reliance on this notice or any subsequent communication.



- C. The BSDMA reserves the right to disqualify any applicant who provides information which later proves to be incorrect, or which does not supply the information required by this notice.
- D. The BSDMA will not be liable for any costs of any applicant participating in this process.
- E. The submission of a response to this notice by any applicant or potential applicant confirms the applicant or potential applicant's acceptance of all terms and conditions of this notice.
- F. Only proposals submitted strictly in accordance with this notice or as may be required by the BSDMA will be considered as valid proposals.
- G. This notice is not a Work Order. A separate Work Order will be issued only after selection of the preferred applicant(s).
- H. All information supplied by the BSDMA in connection with this notice shall be treated as confidential.

**8. Mandatory list of Documents to be attached in Technical Proposal:**

- 1. Audited financial statement & Income Tax Return for the last 3 yrs.
- 2. List and profile of office bearers, staff, experts with qualification, experience and assigned functions.
- 3. A short write up about the Agency.
- 4. Brief about the relevant projects implemented over past 3 years and the outcome along with project completion certificate by the awarding agency.
- 5. Description in short about the on-going projects.
- 6. In case of a consortium these mandatory documents will be applicable to the lead agency.

**9. Pre bid conference:**

In response to the advertisement of EoI regarding the proposal under subject, **pre bid conference of potential desirous bidders will be held on 20th September, 2017 in the conference hall of BSDMA at 11.30 AM.**

**10. Last Date for submission of Proposal:**

The **Technical bid and Financial bid (as stated above) in separate envelops** must reach the office of BSDMA **on or before 22 September, 2017 latest by 05:00 pm** on any working day. The complete proposal document should be sent by courier/registered post/speed post to **Secretary, Bihar State Disaster Management Authority (BSDMA), 2nd Floor, Pant Bhawan, Patna -800001, Phone No.- 0612-2522032.**

The Technical Proposal will be opened on **04 October, 2017 at 12:00 noon** by the competent authority at BSDMA. The applicant agencies, if interested, can remain present at the time of opening of proposals. The proposals will be opened and scrutinised as per instructions given in this document for basic eligibility criteria (including list of mandatory documents), based on which the proposals will be shortlisted for technical evaluation of their proposals. **It is mandatory for these shortlisted agencies to make a presentation of their Technical Proposals on Approach/Process/Methodology/Team Structure etc. on 05 October, 2017 from 12 pm** at BSDMA conference hall before the Technical Evaluation Committee of BSDMA constituted for this purpose.

#### **11. Evaluation Criteria:**

The evaluation would consist of following phases:

**Phase I:** Presentation of Technical Bid by applicant agencies and evaluation/short listing of technically qualified bids.

#### **Phase II: Evaluation of Financial Bids**

In Phase I, the Technical Evaluation Committee of BSDMA will first open the Technical Proposal and will assess the proposals on the basis of technical competence and capability of the agency, which will be evaluated in terms of:

- (1) Presentation on the Technical bid by the agency before the Technical Evaluation Committee
- (2) Understanding of the requirements of the project and proposed Approach & Methodology
- (3) Project Team and experience of personnel deployed, and
- (4) Prior experience in conducting such survey assignments.

The technical bid will be analyzed and evaluated and marks shall be assigned to each bid on the basis of following evaluation matrix:

<b>Bid Component</b>	<b>Weightage in Technical Score</b>	<b>Minimum Qualification Score</b>
Presentation on the Technical bid by the agency before the Technical Evaluation Committee.	10	5
Understanding of the requirements of the project and proposed Approach & Methodology.	40	20
Project Team and experience of personnel deployed.	20	10
Prior experience in execution of field survey using modern surveying instruments.	30	15
<b>Total</b>	<b>100</b>	<b>50</b>



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In Phase – II of evaluation, the financial bids of only those agencies will be opened on 06 October, 2017 which qualify the technical evaluation.

**12. Duration of the Project:**

The proposed field survey of 'Laghu Bandh' (Zamindari Bandh) existing in in all the 38 districts of Bihar is required to be completed within nine months from the date of allocation of the work.

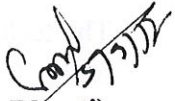
**13. Payment Terms:**

1. Submission of Inception (Working Plan) Report – 30% of the approved budget
2. Submission of Draft Survey Report – 50% of the approved budget
3. Submission and approval of Final Survey Report – 20% of the approved budget

**14. Right to accept any Bid and to reject any or all Bids:**

BSDMA Authority reserves the right to accept any bid, and to annul the Tender process and reject any or all bids at any time prior to award of work, without thereby incurring any liability to the affected agency or any obligation to inform the affected agency of the grounds for its action.

For any further details, the interested parties/agencies may visit the BSDMA web site: [www.bsdma.org](http://www.bsdma.org) or visit the office/or contact the undersigned Sri Ajit Kumar Samaiyar, Sr.Advisor, Environment and Climate Change, e-mail: [ajitsamaiyar@bsdma.org](mailto:ajitsamaiyar@bsdma.org) during any working day.

  
(Sayar Bharti)  
Secretary