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

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**Expression of Interest and Call for Proposal for the study of current status of  
Pollution (water, sound and soil) in Patna.**

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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 agencies/firms to enter into a contract for carrying out field survey/study on current status of pollution (water, sound, & soil) and other allied works (as mentioned in the EoI advertisement) in Patna for further necessary actions.

**CLIMATE CHANGE & POLLUTION IN PATNA.**

**Background:**

Changing is the rule of nature with some positive as well as negative impact. Among the changes, climate change is one of those which have wide-ranging effects on the environment and on socio-economic and related sectors, including water resources, health, agriculture, food security, terrestrial ecosystems and biodiversity etc. Because of the speed at which change is happening, it seems urgent that the vulnerability to climate change be reduced and the capacity to adapt should increase.

Available evidence shows that there is high probability of increase in the frequency and intensity of climate related incidents due to climate change and hence increase in potential threat due to climate change in India. Bihar is no exception to this. Bihar, an entirely land locked state is surrounded by humid West Bengal in the east and the sub humid Uttar Pradesh in the west provides it with a transitional position in respect of climate. A range of measures is already underway in the state that is complementary to the State's climate resilience agenda elaborated under Bihar Action Plan on Climate Change (BAPCC), and spans multiple sectors in which disaster management is one of those. Since no in-depth climate related vulnerability and risk analysis currently exists for the state, it is felt pertinent that such an in-depth vulnerability and risk analyses should be carried out as a part of the larger overarching strategies under the Bihar Road Map for DRR (2015-2030). However, it is expected that even without taking climate change into account, disaster risk will continue to increase, as more vulnerable groups and assets are exposed to weather extremes & others situations like air, water & sound pollution. Available evidence seems to suggest that that climate change has changed the magnitude and frequency of some extreme weather and climate events. As climate change impacts become more dramatic, its effect on a range of climate extremes will become increasingly important and will play a more significant role in disaster impacts.



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## Terms of Reference (ToR):

### 1. Introduction

**Pollution in Patna:** As the capital of the state of Bihar, Patna is the largest city in the state and from pollution point of view Patna has been adjudged as 3rd most polluted capital in India. As all ancient civilization emerged on the river banks, the city of Patliputra, which is now known as Patna, is situated on the southern bank of the river Ganga. This city is facing problems of water pollution, sound pollution, soil pollution, apart from air pollution due to various reasons. These can be from the known sources like contamination in city water supply, road transport, industries, extensive use of plastics, open waste burning, construction activities, aviation etc which are increasing in multiple proportions with the increasing population in the city.

**The water pollution** can be defined as alteration in physical, chemical, or biological characteristics of water which damages the water quality and it becomes unfit for human use. The sources of water pollution could be from sewage and domestic wastes, industrial effluents, run off from the agricultural land carrying washed away chemical fertilizers, garbage disposal in water bodies, detergents and thermal pollutants.

**The sound pollution** refers to unwanted noise in the environment that threatens the health or welfare of human or animal inhabitants. The sources of sound pollution, which affects most people could be loudspeaker, siren, motor vehicles, aircraft, industrial machinery etc. This unwanted sound can damage physiological and psychological health of people if the sound level crosses the threshold of pain i.e. the sound level at which the ear starts to feel pain.

**The soil pollution** happens due to the presence of manmade waste full of chemicals that are not originally found in nature. However, waste produced from nature itself such as dead plants, carcasses of animals and rotten fruits and vegetables only adds to the fertility of soil. The main causes of soil pollution can be the industrial waste lingering in the soil surface for a long time, extensive use of chemical fertilizer and pesticides, accidental oil spills and acid rain because of toxic air in the environment. The long term exposure to such polluted soil can affect the genetic make-up of the body and can cause congenital illnesses and chronic health problems that cannot be cured easily. The soil pollution can even lead to widespread famines if the plants are unable to grow on it.

In the background of above it is essential that the hazardous impacts from environmental pollution are regularly reported and monitored. In Patna the pollution has attracted high priority in respect of environmental regulation since the environmental damage due to such pollution mostly affects human well-being directly by way of adverse health effects on the population exposed to it. It has deteriorated in Patna due to a situation driven by population growth, unplanned development, migration, industrialization and increased improper vehicle traffic moderation, depletion of green covers, increased construction activities, dairy farming etc.



## 2. Objective of Consultancy

The objective of this consultancy is to collect precise current status of Pollution (water, sound & soil) in Patna. This will be done by the following tentative/suggestive initiatives for improving scientific knowledge and evidence based understanding of climate change and its impacts:

- ✓ *Studies of recent changes in climate parameters and associated disaster related impacts:*
- ✓ *Identification & Documentation of adaptation strategies & traditional knowledge being used by the masses:*
- ✓ *Land use/land cover change in the previous decade and its impact on current pollution level:*
- ✓ *Regular monitoring of various pollution parameters for three seasons:*
- ✓ *Based upon current trend futuristic forecast till 2030 (DRR Road map period):*
- ✓ *Documentation of best practices for livelihood despite the polluted environment, and adaptation strategies and promotion of the same through various modes including policy interventions:*
- ✓ *Assessment of coinciding activities with the scope of Agricultural road map and State Action Plan on Climate Change (SAPCC).*

## 3. Scope of Consultancy

The Consultant's services will be to:

- (i) To divide the city into various zones based upon their pollution levels in water, soil & sound, keeping these zones as per the GIS practice.
- (ii) Carry out the proposed field survey using the latest and accurate techniques. The test and other analytical works performing laboratory need to be accredited by NABL (National Accreditation Board for Testing and Calibration Laboratories) & Central Pollution Control Board and recognized by Ministry of Environment & Forest (MOEF). It should be certified by ISO9001:2008 and OHSAS18001: (Occupational Health and Safety Assessment Series) 2007.
- (iii) Prepare a detailed & comprehensive data management tool for further necessary action. The proposed work should include sampling analysis of Environmental monitoring report as per IS standard and for all the three seasons with all NABL and CPCB (Central Pollution Control Board) accredited equipments and parameters.
- (iv) Pollution (water, soil & sound) based mapping of the area & further action plan for three seasons with mapping equipment's like (Water monitoring devices like laser monitors, Sound Level Meter etc. in each zones). The report should identify the sources and impacts characterization. Environmental impacts resulting from proposed actions can be grouped into following categories: (a) Beneficial or detrimental, (b) Naturally reversible or irreversible, (c) Repairable via management practices or irreparable, (d) Short-term or



long-term, (e) Temporary or continuous, (f) Occurring during practice phase or operational phase, (g) local, regional, national or global, (h) Accidental or planned (recognized before-hand), (i) Direct (primary) or Indirect (secondary), and (j) Cumulative or single.

- (v) Forecast for future as per the current trend and expected reduction by adopting best practices. It may indicate cost/benefit ratio both quantitatively & qualitatively.
- (vi) Prepare a suggestive checklist to prevent & mitigate the pollution.

**a. Preparation of survey plan and selection of vulnerable sites:**

The consultant has to do the survey & its analysis of the area of interest by primary & secondary source of information as well as modern technologies to collect information/data and prepare a survey report to finalize the complete sequence of working, establishment of control points (land marks) and have to submit the Inception Report on time with desirable accuracy and as per standard norms. The consultant would also prepare a report that will consist of the project appreciation, detailed scheduling of activities, work output schedule, performance for data collection, identification of social and environmental sensitive areas, and specialized action plan of any particular concerned area.

**Outputs:**

Inception Report reflecting assignment and findings, Map and Table of content, methodology to be used in conducting the survey approach, including process report of consultations and actions taken, further need based activities with checklist.

**Submission:**

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

- Detailed methodology of study with detailed technical description and accuracy of instrument used, site selection techniques with justification, photographs and brief notes about system should be given. The desired output of the survey would cover all technical guidelines issued by the concerned ministry/department.

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. To provide letter of introduction for visit to concerned departments/agencies.
- b. To facilitate access to field offices for data collection.
- c. To assist in providing the copies of maps pertaining to the selected areas, if needed.  
**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.
- d. To coordinate the activities and provide necessary instructions whenever required to avoid any disturbance and loss of time for carrying out the assignment.

#### Note:

Authorized letter for entry to the land for surveying, collection of data etc shall be given to the consultant.

Any other facilities mutually agreed upon by consultant and the client.

#### 5. Responsibilities of the Consultant

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 pollution (water, sound & soil) related data from concerned agencies to prepare survey plans.**

#### 6. Reports and Deliverables:-

The activities described earlier and the outputs described below shall be completed within a period of twelve months (taking all seasons data) with key reporting requirements as follow:

<u>Reports Covering</u>	<u>Time /Month</u>
<b>1. Inception Report:</b> Map and table of content, area of study, technology & methodology to be used in conducting the surveys. The Interim report has to be submitted after each season.	Inception report by the 2 <sup>nd</sup> week of 1 <sup>st</sup> month. 1 <sup>st</sup> Interim report by 2 <sup>nd</sup> week of March 2018 2 <sup>nd</sup> Interim report by 2 <sup>nd</sup> week of July 2018 3 <sup>rd</sup> Interim report by 1 <sup>st</sup> week of October 2018
<b>2. Draft Final Report:</b> Detailing survey outputs, maps, digital files, photographs and description of the work carried out.	By 2 <sup>nd</sup> week of 11 <sup>th</sup> Month
<b>3. Final report:</b>	By 4 <sup>th</sup> week of 12 <sup>th</sup> month

The reports will be reviewed by the review committee constituted for the same by the BSDMA and would be consisting of members from the concerned departments. The Review Committee will provide review and approval report within 15 days after report submission by the Consultant.

**Notes:**

- 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.

**7. Eligibility Criteria & Conditions:**

- 7.1 The agency should be registered in India and not blacklisted by Central/State Govt Departments or Agency. An affidavit to this effect shall be furnished with the expression of interest.
- 7.2 The agency should have experience of minimum 3 years in the relevant area as on 31 March 2017.
- 7.3 The agency should have already successfully completed at least one similar project of not less than 50 lakhs in any one year with last 3 years.
- 7.4 The agency or any of its partners (if it is in consortium) should not have been declared insolvent.



- 7.5 The consultant should submit the completion certificate of the projects already accomplished.
- 7.6 The agency should not have been penalised for delay in completion of work.
- 7.7 Applicants must submit their proposal in two parts. The first part will contain the **Technical Proposal**. The second part will contain the **Financial Proposal**.
- 7.8 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**".
- 7.9 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 for current status of Pollution (water, sound & soil) in Patna**". 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.
- 7.10 The Technical proposal will have the detailed work plan of the survey as per the given ToR.
- 7.10.1 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.
- 7.10.2 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 this assignment.
- 7.10.3 **The details of the Team Structure should be laid down in the technical bid with CVs of all the listed personnel for this assignment.**
- 7.10.4 The applicant agency is also expected to showcase past experience in making such plan.
- 7.11 Agencies having prior work experience of similar nature in Bihar will be preferred based upon, their expertise and satisfactory execution of the same..
- 7.12 The Contract may be terminated with 15 days notice subject to delay/unsatisfactory performance in the work.

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

- 8.1 Audited financial statement & Income Tax Return for the last 3 yrs.
- 8.2 List and profile of office bearers, staff, experts with qualification, experience and assigned functions.
- 8.3 A short write up about the Agency.
- 8.4 Brief about the relevant projects implemented over past 3 years and the outcome along with project completion certificate by the awarding agency.



8.5 Description in short about the on-going projects.

8.6 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 12th 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 19 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 20 September, 2017 at 3 PM 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 21 September, 2017 from 11 am at BSDMA 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 merit. On the basis of technical competence and capability 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 the technical bid marks shall be assigned to each bid on the basis of following evaluation matrix:



Bid Component	Weightage in Technical Score	Minimum Qualification Score
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>

The bidder shall have to qualify in each item as stated above.

**In Phase – II of evaluation, the financial bids of only those agencies will be opened on 22 September, 2017 which qualifies the technical evaluation.**

**12. Duration of the Project:**

The proposed field survey/study of pollution (water, sound, & soil) in Patna is required to be completed within one year for all the 3 seasons (winter, summer and rainy) from the date of allocation of the work.

**13. Payment Terms:**

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

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

BSDMA Authority reserves the right to annul the Tender process and accept or 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 Sri Ajit Kumar Samaiyar, Sr.Advisor, Environment and Climate Change, e-mail: [ajitsamaiyar@bsdma.org](mailto:ajitsamaiyar@bsdma.org) during any working day.

*(Signature)*  
(Secretary),  
BSDMA