भारतसरकार
Government of India
राष्ट्रीयआपदाप्रबंधनप्राधिकरण
NATIONAL DISASTER MANAGEMENT AUTHORITY
'एन.डी.एम.ए .भवन'ए – १,सफदरजंगइंक्लेव,नईदिल्ली – ११००२९
NDMA Bhawan, A-1 Safdarjung Enclave,
New Delhi -110029
Telephone-011-26701700

No. 28/01/2025/DB/CIT Dated 23.01.2025

Subject - Expression of Interest (EOI) for Framework for Creating Disaster Database

1. Objective

The National Disaster Management Authority (NDMA) invites responses to Expressions of Interest (EOI) from Public Sector Undertakings (PSUs) to co-develop, design and implement an advanced AI-driven framework for creating disaster database which is envisaged to support evidence driven disaster risk management. This initiative aims to integrate national, state, district and local authorities using innovative technologies to enhance and optimize preparedness, mitigation strategies, recovery and reconstruction, policy interventions etc towards effective disaster management across India.

2. Indicative Scope of Work

The disaster database will play a significant role in supporting the AI-driven systems for disaster mitigation, response, and recovery. It will serve as the foundation for collecting, organizing, storing, and analyzing critical data needed for various aspects of disaster management. The database is expected to help in the processes as under:

2.1 Data Aggregation and Integration

- **Central Repository** The database will aggregate data from multiple sources, including historical disaster records, satellite imagery, IoT sensors, weather stations, drones, social media feeds, and real-time sensor data. This offers a comprehensive view of disaster patterns and conditions.
- **Data Standardization** The database will standardize data from dissimilar sources, ensuring compatibility and seamless integration across various systems, enabling effective real-time analysis.

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2.2 Real-Time Data Processing and Analysis

• **Dynamic Updates** The database will continuously receive and update data during an event, enabling AI systems to process real-time information. This will allow assessment of a developing situation and provide accurate, real-time insights to support various aspects of disaster management.

• **Event Monitoring** It will store time-series data and event logs, helping the system monitor ongoing events.

2.3 Predictive Impact Modeling and Refined Early Warnings

• **Historical Data Utilization** By storing vast amounts of historical disaster data (e.g., past floods, earthquakes, or storms), the database will allow other AI models to find trends, patterns, and triggers involved.

• **Risk Assessment** The database will support AI algorithms in generating predictive models that assess risks based on past and present data, providing early warnings for imminent disaster events (e.g., a flood forecast or earthquake risk).

2.4 Damage Assessment and Recovery

• **Damage Tracking** The database will store data on damage levels from previous and ongoing disasters, such as building damage, infrastructure loss and human casualties to create damage models that provide right assessments during disaster events.

• **Resource Allocation** The database will track resource inventories (e.g., medical supplies, emergency teams, IDRN etc) and their locations, ensuring efficient allocation and distribution during a crisis. AI systems will use this data to optimize coordination and deploy resources to the most impacted areas.

2.5 Community and Infrastructure Vulnerability Analysis

• **Risk Profiling** The database will store demographic, infrastructure, and environmental data to identify vulnerable populations and critical infrastructure. AI systems will analyze this data to assess community risks (risk index) and recommend mitigation strategies, such as strengthening buildings or improving evacuation routes.

• **Geospatial Data** The inclusion of geographic information system (GIS) data will help AI systems to evaluate geographical risks, such as flood zones or earthquake-prone areas, industrial and CBRN risks, forest fire risks etc and inform disaster preparedness and planning.

2.6 Post-Disaster Recovery and Long-Term Mitigation

• **Recovery Tracking** After a disaster, the database will store post-event data such as recovery progress, economic impact, and rehabilitation efforts. AI systems can analyze this data to show successful recovery strategies and recommend improvements for future events.

• **Resilience Metrics** By analyzing data from past recovery efforts, the database will provide insights into long-term resilience building, helping to inform better urban planning and infrastructure decisions moving forward.

2.7 Actionable Insights for Policy Development

• **Policy Support** The database will store records of disaster policies, past mitigation strategies, and their outcomes. AI systems can evaluate the effectiveness of various approaches and recommend new policies for disaster risk reduction, urban planning, and community preparedness.

• **Scenario Simulation** The database will allow AI systems to run simulations based on different policy scenarios, testing how changes in infrastructure, emergency protocols, or community preparedness can change disaster outcomes.

2.8 Collaboration and Information Sharing

• **Cross-Agency Data Sharing** The database will help data sharing between different government agencies, NGOs, research agencies, academia, and international organizations. This collaborative approach ensures all stakeholders have access to up-to-date and correct data, improving coordination during all stages of disaster risk management.
• **Public Awareness** The database can be used to develop public-facing platforms that share real-time information and disaster preparedness resources, helping communities understand the risks they face and what actions to take.

2.9 Learning and Continuous Improvement

- **Data-Driven Insights** As new disaster events occur, the database will be updated with fresh data, which will feed back into AI models to improve their accuracy over time. This allows for continuous learning, helping the system adapt to appearing trends and evolving risks.

- **Post-Event Analysis** After each disaster, the database can store lessons learned, best practices, and strategies that were effective, enabling AI to refine its recommendations for future disaster management.

2.10 Conclusion The envisaged project will act as the backbone of the various AI systems, providing a centralized and structured data repository for everything from real-time event monitoring to historical trends. By enabling comprehensive data collection, predictive analytics, real-time assessments, and continuous learning, the database will ensure that AI-driven disaster mitigation efforts are accurate, prompt, and effective.
(The above given scope is only indicative in nature to assist in preparing the response)

3. Eligibility Criteria *(details to be provided)*

3.1 Organizational Requirements

3.1.1. Must be a PSU engaged advanced in technology solutions involving AI/ML, cloud computing, and communication networks etc.

3.1.2. Financial requirements: Sound financial capability i.e., annual turnover and net worth (authenticated details to be provided)

3.1.3. Infrastructure:

- MEITY-certified captive centralized / federated data centers with fail over and MTBF provisions.
- Disaster recovery (DR) facilities located outside the primary data centre's seismic zone.
- Compliance to applicable best standards and global best practices.
- Compliance to Security Instructions/directions and global best practice

3.2 Technical Capabilities *(details to be provided)*

3.2.1 Sound AI / ML base for eg - involving storing, managing, and querying large-scale datasets efficiently which may be used to organize raw data, annotations, and extracted features from structured or unstructured databases to enable scalability and fast retrieval for training AI models or real-time applications.

3.2.2 Demonstrated experience of working with government agencies.

3.2.3 Established partnerships with research organizations, academia and enabling technology providers.

3.2.4 In-house domain specialization is preferred.

3.2.5 Indigenous solution development capability.

3.3 Submission of Response to EoI *(within ten days from date of issue)*

Interested PSUs must submit responses to NDMA that includes following:

3.3.1 Cover Letter. Introduction and organizational overview.

3.3.2 Technical Response. Comprehensive approach to design, implementation, and integration in form of a quasi - PPR.

3.3.3 Financial Response. Estimated cost breakdown (upto level 2) and tentative budget estimation in support of the response.

3.3.4 Compliances. To global standards and best practices.

3.3.5 Supporting Documents. Case studies of previous projects and certifications.

3.3.6 Misc. All other details sought in preceding sections / paragraphs or considered appropriate in support of response.

4. Response Submission / Queries - Contact Information

National Disaster Management Authority
NDMA Bhawan,
A1 – Safdarjung Enclave
New Delhi – 110029

(Envelopes containing the responses may kindly be marked with 'Response to EoI for - Framework for Creating Disaster Database by (name of responding entity)' on outer envelope)

Director (Admin)

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