TERMS OF REFERENCE (TOR)

for inviting

Proposal for the

Geospatial Visualization Dashboard for Prayagraj Maha Kumbh Mela

PROJECT PROPONENT

TERI School of Advanced Studies

Plot No. 10, Institutional Area, Vasant Kunj,

New Delhi - 110 070, India.

July 2025

1. Background

The **Prayagraj Maha Kumbh Mela** is recognized as one of the largest human congregations globally, drawing millions of pilgrims. Effective governance of the event requires sophisticated tools for **monitoring**, **data analysis**, and **geospatial intelligence**. To address these challenges, a **web-based geospatial visualization dashboard** is proposed to facilitate decision-making in the domains of **crowd management**, **sanitation infrastructure**, **water quality monitoring**, and **risk mitigation**.

The dashboard will integrate and visualize a range of multi-layered spatial and temporal datasets, including but not limited to:

- High-resolution satellite imagery of Prayagraj
- Floating population & crowd density data
- Locations and capacities of sanitation facilities (toilets, bins, STPs etc.)
- Spatio-temporal Water quality data
- Spatio-temporal pattern of NDWI, NDCI, NDTI etc.
- Temporary infrastructure and utility maps (tents, clinics, power lines, water stations) including WaSH infrastructure and services such as water supply, sanitation (solid waste and wastewater) and health and hygiene
- Evacuation routes and emergency service locations (police posts, fire stations, ambulances)
- The data relating to the DPSIR (Drivers, Pressures, State, Impact and Responses) dimensions linked to the satisfaction levels and perceptions of the floating population on the WaSH services.

The dashboard will include data analytics to support early warning generation and Spatio-temporal variations. By integrating diverse data layers into a unified, user-friendly interface, this geospatial tool will enhance institutional capacity for organization of the Kumbh Mela.

2. Objectives

To design, develop, and deploy a web-based geospatial dashboard that visualizes high-resolution spatial and temporal data related to crowd dynamics, sewerage systems, water quality indices, and health/sanitation infrastructure during the Kumbh Mela.

3. Scope of Work

A. Required UI/UX Designing Team

To develop an intuitive and responsive interface (dashboard) using Figma or equivalent tools that ensure layouts with features such as:

- Interactive maps
- Time-slider controls
- Index cards/panels
- Analytical dashboards and downloadable charts

B. Data Integration into the responsive interface (dashboard)

1. To ingest and harmonize diverse data sources into dashboard) such as:
    - Satellite imagery (e.g., NDWI, NDCI, NDTI etc.)
    - Sewerage Treatment Plant (STP) maps
    - Sewerage and sanitation network
    - Floating population & crowd density data
    - Water quality indices (e.g., BOD, COD, pH)

2. To develop the interface such that the **dashboard enables time-series visualizations** using GeoJSON, shapefiles, raster layers, and tabular data such as:
    - ***Vector and GIS Infrastructure Layers:*** Tent city, Temporary Toilets, Parking area, Major Bathing Hotspots, Sewage Treatment Plants (STP), sewerage.
    - ***Raster:*** Remote sensing quality Indices: e.g., NDCI, NDTI, NDWI, remote sensing correlated BOD, FC.
    - ***Vector and Raster:*** Hydrodynamic water quality modelling, Pollution dispersion pathways, and critical hotspots.
3. To **integrate data on the state of infrastructure of WaSH Services into the dashboard**.
    - ***Water:*** The data on water encompasses quality and quantity of water for drinking; location and type of water supply infrastructure such as water ATMs, tube wells, stand post and any other water supply related infrastructure.
    - ***Solid waste management*****:** The data to be integrated will be locations of solid waste management infrastructure such as transfer stations, dustbins, compactors, tippers and any other solid waste management related infrastructure; and the daily waste flux including biomedical waste transferred, collected or treated during the Maha Kumbh Mela 2025.
    - ***Waste water management*****:** The data to be integrated will be on quantity and availability of waste management infrastructure such as suction machines, STPs and any other wastewater management related infrastructure.
    - ***Sanitation, Health and hygiene*****:** The infrastructure data related to health and hygiene are the location and quantity of hand washing stations, urinal points, toilets, health services such as Primary Health Cares, etc. and any other health and hygiene related infrastructure.
4. **To highlight the outcomes and interactions of various Drivers, Pressures, State, Impact and Responses (DPSIR) dimensions of WaSH services** during Maha Kumbh Mela 2025 on the dashboard. This data entails a comprehensive set indicators that assess the satisfaction levels, perceptions, etc. of the floating population on the WaSH services; set of indicators that estimate dimensions such as quality, quantity, proximity of water supply, solid waste management, waste-water management, health and hygiene at the Maha Kumbh Mela 2025; and aspects relating to policies and regulations, etc.

C. Key Features of the responsive interface (dashboard)

- The dashboard needs to integrate and visualise high-resolution satellite basemap such as using Mapbox/Leaflet)
- The dashboard should have the ability to display phase-wise and sector-wise interactive maps for easy navigation and analysis
- The dashboard should display of computed indices such as NDWI, NDCI, Crowd Index, etc.
- The dashboard should display WaSH infrastructure overlays such as water supply, solid waste, wastewater, and health and hygiene
- The dashboard should display the DPSIR dimensions that includes a comprehensive set of indicators and information on the WaSH services.
- Display environment & crowd correlation tools (scatter plots, correlation matrices)
- The dashboard should have functions for exporting analytical reports and graphs

D. Technical Implementation

- **Recommended Stack**:
    - Frontend: React.js + MapboxGL/Leaflet
    - Backend: Node.js or Python (Flask)
    - Database: PostgreSQL/PostGIS
    - Charts: D3.js / Plotly.js
- Deploy the solution on a secure, scalable web hosting platform
- Ensure all data handling is compliant with Digital Personal Data Protection Act, 2023.

4. Deliverables

1. Functional and responsive web-based geospatial dashboard
2. Admin panel for managing layers and datasets
3. Figma design files and mock-ups
4. Deployment on staging and production environments
5. Technical documentation, API guides, and user manuals
6. Hands-on training sessions for stakeholders
7. 3 months post-deployment handholding support

5. Project Duration

The total duration of this project is **8 weeks** from the date of award of contract. This time period includes:

- UI/UX Design – 1.5 weeks
- Backend and Data Integration – 3 weeks
- Dashboard Development – 2 weeks
- Testing, Deployment & Training – 1.5 weeks

6. Team Composition

The vendor must propose the following professionals:

- **GIS Specialist**
- **Frontend Developer** (React.js)
- **Backend Developer** (Node.js / Flask)
- **Data Analyst** with GIS experience
- **UI/UX Designer**

7. Pre-Qualification Criteria

The Bidder shall submit following documents as soft copy**.**

Sr. No.	Basic Requirement	Specific Requirements	Documents Required
1	Legal Entity	Should be a registered entity under Government of India	Certificates of Incorporation/ Registration as applicable
2	Turnover from projects of similar nature as prescribed in the scope of work	The Bidder should have a cumulative turnover of INR 3 crore (Three Crore Indian rupees) in the last three financial years (i.e. FY 2021-22 FY 2022-2023 and 2023-2024) from their Indian Operations.	CA / Statutory Auditor Certificate
3	Technical Capability	The bidder must have work experience in minimum 3 of the following mentioned domains. 1. *IT & Software development.* 2. *Data Analysis & GIS.* 3. *Custom data Dashboards to represent Data.*	Completion Certificates from the client; OR Work Order ; OR Work Order + Phase Completion (Min-60%) Certificate from the statutory auditor for ongoing projects OR Copy of Work Order signed & stamped by the Client (Kindly note that any of the above documents submitted must be sufficient to certify bidder's experience, must be authentic and must also contain all the project

Sr. No.	Basic Requirement	Specific Requirements	Documents Required
			experience information) .
4	PAN No., IT Registration and GST Certificate	The bidder shall have PAN, valid income tax registration certificate and valid GST registration certificate.	Copy of PAN/ Income Tax Registration certificate. Copy of GST registration certificate.
5	Debarment / undergone arbitration	The bidder should not be debarred, suspended, or declared ineligible by any Government entity in India as on date of bidding.	Undertaking of the authorized signatory

8. Technical Evaluation Criteria

Sr. No.	Criterion	Max. Marks	Supporting Document	Min. Marks
1	**Financial Capability:** Cumulative turnover of the last three financial years (i.e. FY 2021-22 FY 2022-2023 and 2023-2024) from their Indian Operations. • Cumulative Turnover > 3 crore: 15 marks • Cumulative Turnover between 1.5 to 2.5 crore: 10 marks	15	Certificate from Auditors/ CA firm/ Audited Financial Statements (Profit & Loss Statement) to be submitted.	10
2	**Technical Capability**			
	Past experience in Designing & Implementing Dashboards to represent Data. **Marking Criteria** • 3 projects: 25 Marks • 2 projects: 15 Marks • 1 project: 10 Marks	25	Completion Certificates from the Client; OR Work Order + Self Certificate of Completion (Certified by the Statutory Auditor); OR Work Order + Phase Completion Certificate (for ongoing projects) from the client	15
3	**Team CVs/Credential:** Proposed team strength to handle this assignment and their CVs to showcase their ability to handle activities in the specific Domain. • **Team Leader:** 15 marks • **Technical Experts (3 positions):** 5 marks for each expert	30	Please provide details.	21
4	**Approach & methodology (Presentation)** The bidder is expected to submit detailed approach and methodology including the following: • **Understanding of the Project Document**: 15 Marks • **Project implementation plan with key milestones** : 10 Marks	30	To be attached	17.5

Sr. No.	Criterion	Max. Marks	Supporting Document	Min. Marks
	• **Overall approach and methodology:** 10 Marks • **Personnel Deployment plan:** 5 Marks			
	Total Marks	**100**		**70**
	The minimum score for technical qualification is 70			

*** The bidder should not propose the same Team for more than one (1) RFP for similar assignment to be completed within the same timeline. The bidder is liable for rejection from all the bids applied for with the same Team.**

The method of selection will be on Quality (80%) and Cost (20%) Based Selection (QCBS) - 80:20

The Financial Proposal of only those Agencies who qualify technically (Minimum Qualifying Marks: 70%) will be opened. The proposal with the lowest cost will be given a financial score of 100 and the other proposals are given financial scores that are inversely proportionate to their prices. The financial proposal shall be allocated a weight of 20%. For working out the combined score, the TERI will use the following formula:

Total score = 0.8*TS+0.2*FS
Where FS = {(LEC / EC) X 100}

TS = Technical Score; EC = Evaluated Cost of the financial proposal; LEC = Lowest Evaluated Cost of the financial proposal; FS = financial score of the financial proposal. Scores will be rounded up to two decimal places.

The proposals will be ranked in terms of total scores of each applicant. The proposal with the highest total score will be considered for award of contract and will be called for negotiations, if required. In case more than 1 bidders have the same highest total score, the bidder with the highest technical score will be considered for award of contract.

As an example, the following procedure shall be followed. In a particular case of selection, minimum qualifying marks for technical qualifications is 70 and the weightage of the technical bids and financial bids is 80:20. In response to the RFP, 3 proposals, A, B & C were received. The technical evaluation committee after evaluation awarded them 75, 80 and 90 marks respectively out of 100. The minimum qualifying marks were 70. All the 3 proposals were, therefore, found technically suitable and their financial proposals were opened after notifying the date and time of bid opening to the successful participants.

The price evaluation committee examined the financial proposals and evaluated the quoted prices as under:

Bidder	TS	EC	FS ((LEC /EC)*100)	Total Score ((0.8 x TS+ 0.2 x FS))
A	75	120	100/120=83.33	75x0.80 + 83.33x0.20 = 76.66 H3
B	80	100=LEC	100/100 = 100.00	80x0.80 + 100x0.20 = 84 H2
C	90	110	100 /110 = 90.91	90x0.80 + 90.91x0.20 = 90.182 H1

9. Budget

Estimated Project Cost: ₹33,00,000/- (inclusive of taxes and all applicable charges)

10. Submission Instructions

Bidders must submit:

- Technical Proposal (including all pre-qualification criteria documents)
- Financial Proposal
- Detailed work plan with milestone chart
- Signed copy of this ToR
- 5 percent earnest money amount to be deposited at the time of bidding for the project. 10 percent earnest money to be deposited when project is sanctioned. The earnest money amount can be deposited by the supplier through Demand Draft or Bank Guarantee.

11. Terms & Conditions

- The selected bidder shall sign an NDA before accessing any sensitive data.
- All source codes, databases, and UI designs shall be the property of the TERI School of Advanced Studies, New Delhi, upon completion.
- All intellectual property rights generated by this project are reserved by TERI School of Advanced Studies, New Delhi. All material used and collected in this project shall be the property of TERI School of Advanced Studies.
- Project delays beyond 10% of agreed timelines will attract penalties.
- The client reserves the right to reject any proposal without assigning any reason.

12. Important dates

- Date of ToR published: 16th July, 2025
- Last date of submission of bid proposals: 24th July, 2025
- 2 Stage selection process: 25th – 29th July, 2025

Submission by post by 24th July, 2025 (in sealed envelope) to the following address:

- Emerson CoE for Sustainability Studies

  TERI School of Advanced Studies,

  10 Vasant Kunj Institutional Area

  New Delhi 110070, India

  AND

Submission by email by 24th July, 2025 to the following email address duly ensuring that the technical proposal and pre requisites are in pdf and financial quote is in password protected. :

- emerson@terisas.ac.in