Training Program

on

URBAN FLOOD RISK MANAGEMENT

For Municipal Engineers, Town Planners, Sanitation & Solid Waste Management Officers etc.

Date- 19-20 Aug 2025

Venue: GIDM, B/h PDEU, Raysan, Gandhinagar, Gujarat

1. Background

Gujarat, with its rapidly expanding urban centers, is increasingly exposed to urban flood risks due to a combination of intense rainfall events, inadequate drainage systems, solid waste mismanagement, and unplanned urban expansion. Cities such as **Ahmedabad, Surat, Vadodara, Rajkot, Jamnagar, and Gandhinagar** have experienced frequent flooding incidents over the past two decades, often triggered by short-duration, high-intensity rainfall events. These floods often result in severe waterlogging, disruption of civic services, damage to property, and pose serious health and safety risks, particularly for vulnerable communities living in informal settlements or low-lying areas.

Urban floods in Gujarat are not caused by rainfall alone but are significantly aggravated by:

- **Encroachments on natural drainage systems**, including rivers, lakes, wetlands, and floodplains
- **Inadequate and poorly maintained stormwater drainage infrastructure**
- The proliferation of **impervious surfaces** due to unregulated urban development
- Poor **solid waste management**, leading to clogged drains and sewer overflows
- Weak **institutional coordination** and lack of integrated urban risk planning

Moreover, Gujarat's diverse topography and climatic zones—ranging from coastal belts to semi-arid interiors—present city-specific challenges. For instance, Surat, located on the banks of the Tapi River and close to the sea, faces both fluvial and tidal flooding risks. In contrast, Ahmedabad, situated inland, struggles more with pluvial floods due to intense urban development and limited drainage outflow**.**

The consequences of urban flooding are far-reaching—causing damage to infrastructure, disrupting transportation and utilities, displacing populations, and leading to health hazards due to water contamination and vector-borne diseases. As climate change continues to increase the intensity and frequency of extreme rainfall events, the risks to Gujarat’s cities will only intensify.

National Linkages:

- The National Disaster Management Plan (NDMP) outlines urban flooding as a major risk and advocates for integrated mitigation strategies across sectors.
- The Smart Cities Mission, AMRUT, and Swachh Bharat Mission (SBM) emphasize stormwater management, sustainable drainage, and urban infrastructure improvements.
- The State Disaster Management Authority (GSDMA) and Urban Development Department in Gujarat have developed specific guidelines and plans to address flood risk through capacity building, infrastructure upgrades, and risk-informed planning.

Recognizing this, national and international frameworks on disaster risk reduction (DRR) have emphasized the importance of urban resilience and flood risk management:

International Linkages:

- The Sendai Framework for Disaster Risk Reduction (2015–2030) calls for a shift from disaster response to proactive risk reduction and resilience-building, with urban flooding as a key priority.

- The Paris Agreement on Climate Change highlights the role of climate-resilient infrastructure and adaptation measures to address extreme weather events, including urban floods.
- The New Urban Agenda (Habitat III) underscores sustainable and resilient urban development with a focus on equitable access to services and risk reduction for vulnerable populations.
- The Sustainable Development Goals (SDGs)—specifically Goal 11 (Sustainable Cities and Communities) and Goal 13 (Climate Action)—highlight the need for flood-resilient and adaptive urban planning.

Given this backdrop, there is a compelling need to build **institutional and technical capacity** among municipal engineers, planners, and urban development professionals with the knowledge, tools, and collaborative strategies necessary to build flood-resilient cities in Gujarat. A structured training program will help bridge the knowledge gap, promote best practices in flood risk management, and align city-level actions with broader national and global DRR commitments. This initiative aims to enable cities in Gujarat to move toward a **resilient, adaptive, and future-ready urban flood management system**.

2. Objective

The programme has following objectives:

- Understand Urban Flood Dynamics
- Identify Urban Flood Risk & Vulnerabilities
- Assess role of Urban Infrastructure in Flood Mitigation
- Enhance the ability of participants to develop plan of action for resilience
- Encourage development of DRR strategies for reducing Urban Flood Risks
- Recognize the interlinkages between solid waste mismanagement and urban flooding

3. Pre-requisite

There are no pre-requisites for this training course, but prior knowledge on Basics of Disaster Risk Management (DRM) may be beneficial.

8. Expected Learning Outcome

After completing the training program, participants would be able to:

- Contribute in assessing the flood risk & vulnerabilities
- Formulate DRR strategies on Managing Urban Floods for their respective Municipal Areas

9. Targeted Participants

The program is targeted for the following set of participants;

- **Municipal Engineers** (Assistant Engineer/Junior Engineer/Assist. City Engineer/Dy. City Engineer looking after storm water, drainage etc.)

- **Sanitation and Solid Waste Management Officers** (Assist. Engineer/Dy. Engineer/ Sanitary Inspector etc.)
- **Town Planning Officers / City Planners (**Assist. TDO/Dy. TDO/ Town plann etc.)
- **Building Permission / Regulatory Cell Officers**

10. Training Pedagogy

The training will be held at Seminar Hall, GIDM, facilitated by Subject Matter Experts (SME). The training will include active learning techniques such as presentations, group discussions, interactive exercises, case studies, simulations, exposure visits and hands on experience which will encourage participants to engage actively with the training content

Further, quizzes, tests and skill demonstration will also be included in the program for monitoring learners' progress, identifying areas for improvement, and reinforcing learning outcomes.

11. Training Certificate

Certificate of participation will be given to participants who attend all the sessions during the 2-days training program