

Concept note			
A 2-days Residential Training programme on Disaster Resistant Water Infrastructure is scheduled from 27 th – 28 th Dec., 2022.			
Subject	Disaster Resistant Water Infrastructure		
Target Participants	Engineers of NWRWS&K Dept.		
Date of Training Programme	27 th – 28 th Dec. 2022	Location	GIDM, Gandhinagar
Time	10.30hrs – 18.00hrs	Coordinator	Dr. Sandeep Pandey & Piyush Ramteke, Programme Managers, GIDM
Expected no. of Participants	33	Contact	+91-7574802288 apspm-gidm@gujarat.gov.in
1. Aim			
To develop the capacities of target participants by linking their roles in DRM activities with field level actions using appropriate technologies considering global perspectives and action at local level.			
2. Background			
<p>Gujarat is highly vulnerable to all major natural hazards, including Earthquakes, Tsunamis, Floods, Droughts, and Tropical Cyclones. The Kandla Cyclone of 1998 has caused widespread damage to the infrastructure including housing, industrial units, communication facility, administration buildings and commercial properties.</p> <p>Similarly, In the devastating earthquake of 2001, around 2,22,035 housing units were destroyed and 9,17,158 housing units were damaged. The total estimated loss to the State was around Rs 23,024 Crore.</p> <p>Similarly canal breaches are two hundred (2017-19) in numbers, around 80 to 100 lakhs spent in repairing.</p> <p>It is important to note that the structures (buildings, roads, canals) using technology performs well during the extreme events.</p> <p>The resilience of infrastructure has been defined as ‘The ability to reduce the magnitude and/or duration of disruptive events. The effectiveness of a resilient infrastructure or enterprise depends upon its ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event’ (US: NIAC-2009). The infrastructure that are resilient can evolve in the face of disaster and stop failure from rippling through systems; they can re-establish function quickly and avoid long-term disruptions.</p> <p>Canals in the country are constructed using upgraded construction technology. With the massive construction machinery. The consideration of important factors such as fast depleting natural resources, achievement of Sustainable Development Goals (SDGs) &</p>			

international commitments to reduce carbon footprints and resilient infrastructure, there is urgent need to find substitute for energy intensive building materials such as burnt clay bricks, and minimize the use of scarce natural materials such as river sand, water, timber etc. Globally, there has been technological advancement in the area of building materials and fast track prefabricated/pre-engineered construction practices. The use of alternate technologies in our country is in a limited extent so far.

Canals or artificial waterways are waterways or engineered channels built for drainage management (e.g. flood & drought management and irrigation) or for conveyancing water transport vehicles.

Ministry of Jalshakti, GoI has developed, Manual for Canal lining construction; it is an approach to new technologies to strengthen the facilities to be hazards resistant. Globally best available proven construction technologies that are sustainable, green and disaster resilient through a challenge process which bringing a paradigm shift in construction practices.

The newly massive canal making machines and its components like channel making machine, Horizontal finisher, canal paver etc. are the first large-scale systematic application of modern construction practices. In machine constructed canal the gaps and filling areas are minimal that upgrade the resilience of canal linings.

In the wake of increasing disaster risk in Gujarat and in the country, there's been a big push for resilient constructions to protect the people and cities that depend upon them for survival. There is an increasing need being felt for a more systematic, holistic and integrated effort to address the critical areas of concern responsible for the weak performance of canals during any natural hazard over a period of time.

While it is not possible to avoid exposure to disaster events, proper land use planning and location decisions must be accompanied by other structural or non-structural methods for preventing or mitigating the associated risk. The priorities of the Sendai Framework for Disaster Risk Reduction have ample references to building and land use regulatory development and implementation thereof is a key element of disaster risk reduction. This agenda is a clear evidence of a strong international consensus to expand the full potential of effective regulation in reducing risks.

As substantial population of Gujarat is exposed to frequent threat of various natural hazards, so one of the suitable strategy is to use resilient techniques to reduce the risk of structure failure and to improve the performance as well.

3. Objectives

- To develop a sound understanding about various Disaster Resistant Construction Technologies

- To enhance the knowledge of engineers in Disaster Resistant Construction materials
- To encourage the use of resilient technologies for construction of canals in hazard prone areas.
- To promote cost effective confined canal construction practices in hazard prone areas
- To encourage the use of resilient construction technologies

4. Why Training on Seismic Risk Assessment and Rehabilitation of Buildings ?

- Around 31.7% of area in Gujarat falls in seismic Zone- V and IV, which comes under Very High Risk Zone.
- Lack of understanding of resilient infrastructure.
- Lack of awareness among various stakeholders about the technological options for resilient construction
- Inadequate provision for execution of new construction systems.
- Absence of understanding about sustainable construction material in suburban and rural areas
- Lack of understanding about application of new technologies

5. Target Departments

- NWRWS & K Department

6. Target Participants

S.No.	Target Group	Level of Participants	
1	Dy. Executive Engineer	L-2	
2	Assistant Engineers/Additional Assistant Engineers/Technical Resource Persons	L-3	