



## EDITORIAL: INDIAN EXPRESS

### GENERAL STUDIES 3: DISASTER MANAGEMENT

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## HOW THE 2004 TSUNAMI CHANGED EARLY WARNING SYSTEMS

### The 2004 Indian Ocean Tsunami: A Catastrophic Event

- On December 26, 2004, a 9.1-magnitude earthquake beneath the Indian Ocean near Indonesia triggered a devastating tsunami.
- Over 230,000 lives were lost across multiple countries, including Indonesia, Thailand, India, and Sri Lanka.
- Entire communities were destroyed, and the absence of early warning systems worsened the disaster's impact.
- The lack of preparedness and awareness left people vulnerable to the massive waves, making it one of the deadliest natural disasters in history.

### Commemorating the Tragedy: A Journey to the Andaman and Nicobar Islands

- In 2024, the Headquarters Andaman and Nicobar Command (HQ ANC) commemorated the tsunami's anniversary with a knowledge exchange event.
- The event focused on disaster management, survivor stories, and regional security.
- Delegates from ten Indian Ocean Region (IOR) countries participated, sharing experiences in humanitarian assistance and disaster response.
- Meghana Rajashekhar, a survivor who lost her parents, emotionally recounted the human toll of the disaster.

### Lessons Learned: The Need for Early Warning Systems

- The tsunami struck the Andaman and Nicobar Islands within 20 minutes and reached Sri Lanka and Chennai within two hours.
- In 2004, India lacked an effective early warning system, relying on limited seismic monitoring capabilities and international data.
- Although INCOIS had a tsunami detection system, it wasn't designed for distant events, which led to delays in alerts.



## Building Resilience: Strengthening India's Disaster Management

- India enacted the Disaster Management Act in 2005 and established the Indian Tsunami Early Warning Centre (ITEWC) at INCOIS in 2007.
- The ITEWC now monitors seismic activity and sea levels in real time, providing rapid alerts to national and international stakeholders.
- Odisha set a benchmark with 24 villages being recognized as “tsunami ready.”
- India's disaster risk reduction efforts align with the Prime Minister's Ten Point Agenda, focusing on early warning systems, risk mapping, and communication networks.

## Evolving Strategies: Toward a Disaster-Resilient India

- The HQ ANC's “Dweep Diksha Dialogue” highlights ongoing efforts in disaster risk reduction (DRR).
- Innovations like the Common Alerting Protocol (CAP) and modern cell broadcast systems aim to improve warning dissemination for various hazards, beyond tsunamis.
- Collaborative efforts between India's armed forces, political leadership, and organizations like the NDMA promote a culture of preparedness.

## INCOIS: Key Contributions to Disaster Management

- Established in 1999, INCOIS is an autonomous body under the Ministry of Earth Sciences.
- Through ITEWC, INCOIS provides tsunami advisories to India and coordinates the Tsunami Ready program.
- INCOIS conducts biannual IOWave tsunami mock exercises to strengthen readiness for emergencies.
- The organization also supports the fishing community by identifying Potential Fishing Zones (PFZ).
- INCOIS has improved cloud cover issues through the use of geostationary satellites and numerical modeling.
- It has partnered with ISRO and the Airports Authority of India to develop satellite-based message broadcasting services using the indigenous NAVIC system.

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