Recovery from the Indian Ocean Tsunami

The Indian Experience

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Outline

• Overview of the Impact of the Tsunami
• Recovery in the Tsunami Affected Areas
• Good Practices
• Challenges
• Road Ahead
Overview of the Tsunami Impact

• In India, the Indian Ocean Tsunami of 26th December 2004 affected approximately 2336 km of the coastal areas of Kerala, Tamil Nadu, Andhra Pradesh, Pondicherry and Andaman & Nicobar Islands.

• Extensive damage to life, infrastructure, property and assets

• Approximately US$ 660 million of damages and another US$ 410 million of losses in the affected areas of Andhra Pradesh, Kerala, Tamil Nadu and Pondicherry.

(The Joint Assessment Mission by the United Nations, the Asian Development Bank and The World Bank)
## Overview of the Tsunami Damage in India

<table>
<thead>
<tr>
<th>Damage Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Length affected</td>
<td>2336 kms</td>
</tr>
<tr>
<td>No of villages affected</td>
<td>1396</td>
</tr>
<tr>
<td>Population affected</td>
<td>2.67 million</td>
</tr>
<tr>
<td>Human Lives lost</td>
<td>9395</td>
</tr>
<tr>
<td>Persons missing</td>
<td>3964</td>
</tr>
<tr>
<td>Persons moved to safer places</td>
<td>646827</td>
</tr>
<tr>
<td>Dwelling units destroyed (approx)</td>
<td>168973</td>
</tr>
<tr>
<td>Livestock</td>
<td>73688</td>
</tr>
<tr>
<td>Cropped Area (ha) affected</td>
<td>20713.53 ha</td>
</tr>
<tr>
<td>Boats damaged/destroyed</td>
<td>63317</td>
</tr>
</tbody>
</table>
Recovery Highlights

AREAS : BUILD BACK BETTER

- Housing
- Water and Sanitation
- Infrastructure
- Environment
- Livelihood
- Health and Nutrition
- Psychosocial Care
- Social Welfare
- Gender concerns
Pilot Early Warning System

Wireless-Linked Public Address System

In 66 Villages

Public Address System, Sirens

Wireless Triggered Early Warning

Real Time Communication

Fail Proof
PUBLIC ADDRESS SYSTEM IN PLACE
Cuddalore District, Tamil Nadu
Challenges

• Tsunami was an unknown phenomenon in India
• Institutional convergence and co-ordination at all levels
• Community initiative and social infrastructure under stress in most areas
• Lack of Accurate Data and Information
• Limited capacity amongst the community, first responders and other critical stakeholders
• Oversupply of relief materials such as boats
• Duplication of assistance
Challenges

• Increased school dropout rates and non-enrolment in the five worst affected districts of Tamil Nadu
• Slow pace of recovery process due to delay in identification of local implementation agencies and lack of capacity at local level
• Infrastructural rebuilding and reconstruction was predominantly carried out by the govt. agencies. The procedures such as rates, quotations and tendering
• Transparency of Recovery Process
• Creation of Appropriate Institutional Mechanisms at the National, State and District Level
Lessons Learnt

- Need for Risk Assessment and Vulnerability Analysis
- Need for hazard-resilient construction practices
- Regular maintenance of housing and infrastructure
- Ownership and Accountability of Stakeholder Groups
- Good media management conveying the right messages
- Preparedness is essential
- Co-ordination and networking
- Strength of Participatory, Inclusive and Gender-sensitive approach
The Paradigm Shift in Disaster Management in India

- From a hitherto reactive, post-disaster relief-centric regime to a more pro-active approach of strengthening disaster preparedness, mitigation measures and emergency response.

- Accompanied by the national resolve and national vision for working towards a disaster-resilient India by involving all stake-holders in creating a Culture of Preparedness, Mitigation and Prompt and Effective Emergency Response.
Institutional Mechanisms

• Disaster Management Act, 2005
• The constitution of the National Disaster Management Authority (NDMA) headed by the Prime Minister of India as the apex body for disaster management in India
• The setting up of the State Disaster Management Authorities (SDMAs) in States and Union Territories under the respective Chief Ministers and the District Disaster Management Authorities (DDMAs) at the districts under the District Collectors and Presidents of the Zilla Parishads
National Disaster Management Authority (NDMA)

- The apex body for Disaster Management in India

- Set up as a part of the Government of India’s decision to put in place necessary institutional mechanisms for drawing up and monitoring the implementation of disaster management plans, ensuring measures for prevention and mitigation of disasters and for undertaking a holistic, coordinated and prompt response to any disaster situation.
National Disaster Management Authority (NDMA)

• The Constitution of the National Disaster Management Authority (NDMA) was notified on 30 May 2005.

• On 28 September 2005, the names of the Vice Chairman and Members of NDMA were notified. The Prime Minister of India heads the NDMA as its Chairperson.

• Gen N C Vij, PVSM, UYSM, AVSM (Retd), Former Army Chief, was designated as the Vice Chairperson of NDMA with the status of a Cabinet Minister.
National Disaster Management Authority (NDMA)

The other Members of NDMA are:

- Lt Gen J R Bharadwaj, PVSM, AVSM, VSM, PHS (Retd)
- Dr. Mohan Kanda
- Shri M. Shashidhar Reddy, MLA
- Shri K M Singh
- Shri N. Vinod Chandra Menon
- Smt Jyoti Rao, and
- Shri B. Bhattacharya
Institutional Mechanisms

• Draft of the National Disaster Management Policy prepared by NDMA circulated to the Ministries of Government of India and the State Governments and a Policy Workshop held at Hyderabad on 27th October 2006

• National Executive Committee (NEC) constituted under the Union Home Secretary, Government of India

• National Disaster Response Fund and National Disaster Mitigation Fund being set up, with the provisions for similar funds at the State and District levels
Strengthening Disaster Preparedness

- 8 Battalions of National Disaster Response Force (NDRF) created under a Director General, NDRF and forces located at strategic disaster-prone locations
- National Institute of Disaster Management (NIDM) being strengthened as the apex training institute and also designated as the SAARC Centre for Disaster Management (SCDM) in New Delhi.
Strengthening Disaster Preparedness

- First Responder Institutions like National Fire Services College, Nagpur and National Civil Defence College, Nagpur being upgraded as apex training institutes with state-of-the-art facilities.

- The role of Civil Defence is being redefined to make the Civil Defence responsible for strengthening disaster preparedness and emergency response.
Current Areas of Emphasis

• Risk Assessment and Vulnerability Analysis
• Guidelines for Management of Earthquakes, Floods, Cyclones, Landslides, Nuclear, Biological and Chemical (NBC) Disasters
• Guidelines for Medical Preparedness
• Heli-ambulance, Heli-rescue
• National and State Level NGO Task Forces for DM
• National Corporate Task Force on DM
Current Areas of Emphasis

• Insurance
• Micro Finance
• Self Help Groups
• Techno-legal regime
• Techno-financial regime
• Early Warning Systems
• Community Based Disaster Preparedness
• Geographical Information Systems
Current Areas of Emphasis

• Mock Drills
• Public Awareness Campaigns
• Scenario Building and Modelling
• Research and Development
• Documentation
• Capacity Building
• Micro Zonation of High Risk Cities
• Structural and Non-Structural Mitigation Projects
• National Database for Emergency Management
Current Areas of Emphasis

• Strengthening the Emergency Operations Centre Network
• Dissemination of Alert and Early Warning Messages
• Review of Curriculum in Professional Disciplines
• Strengthening the Fire Services as Multi-Hazard Response Services
• Strengthening Civil Defence in 241 hazard-prone districts
• Networking of Professional, Scientific and Technical Institutions
• Mainstreaming DM in development planning
Current Areas of Emphasis

• Identification of appropriate technologies for early warning systems
• Documentation of best practices, coping strategies and indigenous traditional knowledge in Disaster Management
• Creation of a bank of context-specific designs for temporary shelters and intermediate shelters
• Review of relief codes and preparation of DM Manuals
• Preparation of a National DM Plan
• Making DM a participatory, inclusive, gender-sensitive and eco-friendly multi-dimensional process
• Strengthening the governance of DM in India
• Empowering all stakeholders to create a disaster-resilient India
Agricultural Preparedness for Natural Disasters

• Economic unviability of agriculture
• Dependence on rainfed farming
• Predominance of paddy cultivation
• Large tracts of cultivable wasteland
• Low average farm sizes
• Dependence on credit, mostly from rural moneylenders
• Lack of forward and backward linkages
Agricultural Preparedness for Natural Disasters

- Potential of Rural Knowledge Centres
- Use of Community Radio for dissemination of information, early warning and knowledge
- Identification of disaster mitigation components
- Thinking “out of the box”
- Sustainable Agriculture: S & T applications
- Bio Diesel sources: sunflower, rapeseed, canola or *Jatropha Curcas*
- Intercropping of *Jatropha Curcas* with other crops
The New Frontiers

• Management attends to the realism of what is.
• Leadership looks toward what could be, what should be.
• Incrementalism versus Proactive Design of Institutional Mechanisms: National, State and District Authorities; National Plan, State Plans, Ministry Plans, District Plans; Guidelines; National Policy on Disaster Management; NDRF; NIDM; Disaster Response Funds and Disaster Mitigation Funds at National, State and District levels; Involvement of all stakeholders
New Thrust Areas

• Improved Disaster Preparedness through Public Awareness campaigns
• Training, Capacity Building, Research & Development, Documentation
• Strengthened Emergency Response
• Enforcement of Compliance of Regulations
• Mobilising stakeholder participation: Elected Representatives, NGOs, Community, Corporate Sector, Media, Scientific and Technical Institutions, etc.
• Community Based Disaster Management initiatives
THE LESSON FROM BANGLADESH....

On 12 November, 1970 a major cyclone hit the coastal belt of Bangladesh at 223 km/hr. with a storm surge of six to nine meters height, killing an estimated 500,000 people.

Due to the Cyclone Preparedness Program, the April 1991 cyclone with wind speed of 225 km/hr. killed only 138,000 people even though the coastal population had doubled by that time.

In May 1994, in a similar cyclone with a wind speed of 250 km/hr. only 127 people lost their lives.

In May 1997, in a cyclone with wind speed of 200 km/hr. only 111 people lost their lives.
Thank You