

TSUNAMI GLOBAL LESSONS LEARNED

Presentation by

Mr. C.V. Sankar, NDMA, India

Mr. Rajat Sachar, Planning Commission, India

April 24, 2009, New York

Impact of Tsunami in India

December 24, 2004

- **Over 12,400 lives lost.**
- **2.8 million people, 2,35,000 dwelling units, 1089 villages, 39,000 hectares of agricultural land - adversely affected.**
- **Catastrophic damage in Andaman and Nicobar Islands, Tamilnadu, Kerala, Andhra Pradesh and Pondicherry.**
- **Infrastructure – around US \$3 billion destroyed.**

Indian Response

- **Immediate Relief and Rescue Operations in the country – over 20,000 personnel including from the Armed Forces deployed along with 40 ships, 34 aircrafts and 42 helicopters. Despite being hugely affected, offered relief and rescue also to our neighbours in coordination with them. Indian Navy ships with integrated helicopters and medical teams were deployed. Indian Air Craft carried out relief sorties and provided emergency supplies.**
- **Followed by temporary rehabilitation, sustenance to the affected families and revival of means of livelihood. Tsunami rehabilitation Programme of over US \$ 2 billion over a four year period.**
- **Long-term plan for Rehabilitation and Reconstruction.**

Responsive Institutions Established

- **National, State, District Disaster Management Authorities – triggered. The NDMA is headed by the Prime Minister.**
- **Empowered Group Of Ministers(EGOM) for Monitoring Tsunami Projects**
- **Inter - Ministerial and Inter - State Core Group in Planning Commission**

Counter Measures For Tsunami

- **Emphasis on bio-shield – Mangroves and shelter belt plantations**
- **Review of coastal zone regulations**
- **Development of Tsunami /Storm surge code for coastal structures**
- **Awareness generation at local levels – mock drills**

Capacity Building and Education

- **Tsunami Early Warning System commissioned**
- **National Institute of Disaster Management – Training Centre of Excellence in Asia**
- **Guidelines for different disasters developed by National Disaster Management Authority**
- **Disaster Risk Management programme for hazard prone districts**
- **Teaching disaster management as part of social sciences in high school**

Rehabilitation, Reconstruction & Risk Mitigation

Before



After



Before



After



Before



After



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AREAS OF FOCUS

- **Warning Systems**
- **Community Preparedness**
- **Building, Habitat Planning & Zoning Standards**
- **Respect For Ecology**
- **Livelihood**
- **Risk Mitigation**

Warning Systems

- Fail safe
- 24/7/366
- Single point of decision
- Multiple channels of communication-Radio, TV, DTH, Satellite, VHF
- Scope for improvement
- Ease of maintenance
- Training of community



Community Preparedness

- Definition of community-inclusion of the usually excluded-women, physically challenged, elderly, children
- Social & economic systems
- Usual channels of community participation
- Multi-modal training programs
- Funding and sustainability



Building, Habitat Planning & Zoning Standards

- ❑ Disaster resistant building construction-standards, availability of land/material, logistics, quality of workmanship/training environment foot print
- ❑ Social issues in habitat planning-location, size of plot, common facilities
- ❑ Affected vs not affected



Respect For Ecology

- ✓ **Fragile nature of the coast-
made more serious by threats
of sea level rises**
- ✓ **Limited options of
protection-technology, cost,
maintainability**
- ✓ **Livelihood issues vs safe
buffer**
- ✓ **Appropriate building
materials-availability, foot print,
time**
- ✓ **Silver lining-community
awareness**



Livelihood

- Poorest the most vulnerable-location, skill sets, income and insurance levels
- Directly and indirectly affected
- High population densities
- Changing livelihood patterns-role of women, limited options, marketing, time required for upgradation



Risk Mitigation

- ❖ Reduction of vulnerabilities-
assessment of risks, physical,
social & psychological
- ❖ Holistic approach-planned
habitats, better houses, buffer
zones, warning systems,
education and health facilities,
evacuation routes, shelters
- ❖ Insurance-life, property,
health
- ❖ Role of media





HAVE WE BUILT BACK BETTER?