

B. THE DECEMBER 2004 TSUNAMI

The Disasters

10. For the first time in half a century, India experienced the devastating effects of a tsunami, caused by a series of earthquakes in the Bay of Bengal². The first and strongest earthquake occurred off the west coast of northern Sumatra, Indonesia at 6.29 AM Indian Standard Time on December 26, 2004 (magnitude and intensity 9.0 USGS), followed by one 81 kilometers (km) west of Pulo Kunji Great Nicobar, India (7.3 USGS) some three hours later. 115 aftershocks were reported, of which the magnitude of 103 tremors was between 5.0 and 6.0 USGS and 12 were over 6.0 on the Richter scale. The earthquakes set off giant tsunami tidal waves of 3 to 10 meters in height, which hit the southern and eastern coastal areas of India and penetrated inland up to 3 kms, causing extensive damage in the Union Territory (UT) of the Andaman & Nicobar Islands, and the coastal districts of Andhra Pradesh, Kerala and Tamil Nadu and the UT of Pondicherry. Approximately 2,260 km of the coastal area besides the Andaman & Nicobar Islands were affected.

Human Toll³

11. **All India.** According to Government reports 10,881 people in India lost their lives and 5,792⁴ persons were reported missing with 6,913 injured.

12. **Tamil Nadu.** In Tamil Nadu over 7,983 deaths were reported. Of the 13 coastal districts⁵ affected in Tamil Nadu, Nagapattinam, where 6,051 people died, was the worst affected. Over 824 died in Kanniyakumari and 612 were reported dead in Cuddalore district.

13. **Kerala.** In Kerala 171 deaths were reported. Of the four affected districts of Kannur, Ernakulam, Alappuzha and Kollam, Kollam district accounted for the highest death toll of 131 followed by Alappuzha with 35 and Ernakulam with 5.

14. **Andhra Pradesh.** In Andhra Pradesh 105 deaths were reported and 11 people were reported to be missing. Of the affected districts⁶, Krishna and Prakasam were reported to be the worst affected in terms of human toll with 27 and 35 deaths respectively.

² The last time a tsunami hit the coast of India was in 1945. The other Asian countries affected are Indonesia, Maldives, Myanmar, Sri Lanka and Thailand. Several countries in East Africa have also been affected.

³ The human toll data are taken from the United Nations Disaster Management Team (UNDMT) Situation Report dated February 11, 2005 which is based on Government reports.

⁴ The most recent reports indicate that 2,812 people out of the 5,792 reported missing are dead.

⁵ The affected districts in Tamil Nadu are Thiruvallur, Chennai, Kancheepuram, Viluppuram, Cuddalore, Thanjavur, Nagapattinam, Pudukkottai, Ramanathapuram, Toothukudi, Tirunelveli, Thiruvarur and Kanniyakumari.

⁶ The affected districts in Andhra Pradesh are Visakhapattanam, East Godavari, West Godavari, Krishna, Guntur, Prakasam and Nellore.

15. **Pondicherry.** In Pondicherry 591 deaths were reported and 75 persons were reported missing for the coastal areas of Pondicherry and Karaikal. In Karaikal 484 persons were reported dead and 66 missing.

The Relief Effort

16. **Government response.** Although the GOI and the state governments in Tamil Nadu, Kerala and Andhra Pradesh and the Pondicherry Administration were caught unawares by the tsunami, they responded quickly.

17. **Government of India.** At the national level, a number of steps were taken. The Ministry of Home Affairs (MHA) of the Government of India was designated as the nodal agency for coordinating relief in the affected states and union territories and formed a control room with a public help line. A National Crisis Management Committee (NCCM) was established under the Cabinet Secretary to draw up an emergency relief plan and to review those efforts together with secretaries of the relevant ministries/departments and chiefs of the armed forces. A National Crisis Management Group was formed under the chairmanship of the Secretary, Border Management, MHA, and teams of representatives of various ministries led by a Joint Secretary visited the affected states. Individual ministries also undertook ministry specific efforts. Rs. 2,731 crore (\$627.81 million) of funds were allocated to the affected states and union territories from the National Calamity Contingency Fund (NCCF)⁷. Other funds have also been announced⁸. In recognition of the need for transition from relief to reconstruction, the GOI is now focusing mainly on preparing a comprehensive framework for rehabilitation and reconstruction coordinated by the Planning Commission.

18. **State and UT Governments.** In the various affected states and union territories the respective Chief Ministers directed officials of the Revenue Department under the Relief Commissioner to coordinate search, rescue and relief efforts through relevant district collectors with assistance from the police force, fire and rescue services, medical and health services and all other associated departments. The State Relief Commissioners opened control rooms with a view to disseminating information to the public and state government. Websites relating to tsunami rescue and relief operations were opened. Supported by the army, navy, air force and coast guard, and senior civil servants deputed to affected areas, the district administration in the various affected states identified and disposed of dead bodies, moved obstacles, rescued people, moved people to safer locations, and worked to prevent outbreak of epidemics and restore basic services like power and water supply. In addition, relief camps were opened. In Tamil Nadu 44,207 persons were placed in 58 relief camps. In Kerala 24,978 people were placed in 29 relief camps. In Pondicherry 48 relief camps had been opened initially but are no longer inhabited. In Andhra Pradesh 65 relief camps had been opened but all the inhabitants have returned and the camps have since been closed. State governments and UT administration have also disbursed financial assistance and relief material to families of the deceased, affected families and the injured, and announced certain house damage repair subsidies.

⁷ This tsunami-related NCCF amount consists of allocations for both relief and reconstruction and recovery. Some initial state/UT specific allocations from NCCF have been made. Rs. 250 crore (\$57.5 million) has been allocated to Tamil Nadu, Rs. 100 crore (\$23.0 million) to Kerala and Andhra Pradesh respectively and Rs. 35 crore (\$8.0 million) has to Pondicherry. Additional NCCF allocations are due to be made.

⁸ These include the Prime Minister's National Relief Fund (which announced an ex gratia payment of Rs. 1,00,000) related to relief.

19. **NGO/civil society response.** Community members, private individuals and non governmental organizations (NGOs) across India mobilized to respond to the needs of the affected states and UT. Bilateral donor agencies have supported such NGOs. NGOs operating in sectors ranging from health, psycho social counseling, shelter, sanitation and water, education, livelihood and environment include agencies such as World Vision India, CARE (India), Catholic Relief Services (India), Project Concern International, Echo, Oxfam, Dhan Foundation, League for Education and Development, Tamil Nadu Voluntary Health Association, and Jesuits in Social Action.

20. **Private sector response.** The affected states and UT have received corporate donations of funds and relief material of unprecedented scope. The United Nations Development Program (UNDP) estimated that the corporate sector in India may have contributed more than \$8 million worth of cash donations, food and medicine, emergency relief supplies and other humanitarian services. Indian companies, including established business houses, banks, insurance, medical and information technology companies and public sector entities, have already contributed over Rs. 40.0 crore (\$9.2 million) to the Prime Minister's National Relief Fund (see footnote 7) and have also provided donations to established relief NGOs like Oxfam, CARE and Dhan Foundation. Fundraising efforts by sports and media persons have also taken place.

21. **International Community response.** The United Nations Disaster Management Team designated the United Nations Children's Fund (UNICEF) as the focal point for relief activities. UNICEF deployed rapid action teams and sent reports within 72 hours of the disaster. Other UN agencies supported UNICEF to carry out relief activities. In addition, the UNDP has helped coordinate UN system efforts in terms of rehabilitation and recovery. UN agencies involved include the International Labor Organization (ILO), United Nations Industrial Development Organization (UNIDO), Food and Agriculture Organization (FAO), World Health Organization (WHO), UNICEF, United Nations Population Fund (UNFPA), United Nations Education, Social and Cultural Organization (UNESCO). A UN Team for Recovery Support has also been established in Chennai.

C. GUIDING PRINCIPLES OF THE DAMAGE AND NEEDS ASSESSMENT

Methodology Used for the Damage Assessment

22. The guiding principles for this evaluation are to: (a) identify the damage and losses incurred; (b) show the inter-relationship among the effects in the different sectors, highlighting the cross cutting elements among them; and (c) provide an appropriate framework for the recovery and reconstruction effort. This approach helps support a strategy that seeks to pursue three critical actions: sector prioritization, time sequencing, and resources required. This last element defines whether there is a resource gap to be filled.

23. The damage and losses assessment is intended to quantify the consequences of the disaster, and to provide a first attempt at identifying immediate and medium term reconstruction needs. The assessment's conceptual basis is the standard internationally accepted methodology developed by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC)⁹ which uses a stock/flow analysis that evaluates effects on: (i) physical assets that will have to be repaired/restored/replaced or discounted in the future; and (ii) income flows that will not be realized until the asset is repaired or rebuilt.

24. A sector-by-sector analysis of the damage and losses was undertaken, utilizing specific templates for information recording and gathering in order to ensure consistency of information, non duplication and comparability of the data. An effort has been made to distinguish between public and private sector damages and losses, and where relevant, reference is made to external components of both damage and losses.

25. Sectoral teams were organized with members from the three institutions (ADB, the United Nations, and the World Bank), with the appropriate mix of sectoral expertise (housing, agriculture, fisheries, infrastructure, livelihoods, social sectors, environment, as well as fiscal and financial aspects), that undertook field visits to the three affected states and union territory. Team members visited the severely affected districts and a sample of sites and locations that exemplified the type and extent of damage, losses and emerging needs. Meetings were held with the respective Chief Secretaries and their staff in each state and union territory and the visits had the valuable cooperation of the line departments, the district collectors and their teams. Community level organizations and NGOs, as well as local experts and relevant technical and scientific institutions were also contacted.

⁹ Reference: *Handbook for the evaluation of the socioeconomic and environmental impact of disasters* (LC/MEX/G.5, July 2003) available at the following web pages: www.eclac.cl/mexico, (“disasters”) www.worldbank.org/hazards/knowledge/other_res.htm and www.proventionconsortium.org/toolkit.htm.