

5. Activities for Countermeasures against the Tsunami in Indian Ocean

5-1. Multi-national Survey Mission to Tsunami Affected Areas in India

5-1-1. Background

On 26 December 2004, the world's fifth-largest earthquake of the magnitude of 9.0 on the Richter scale occurred at 00:58 hrs GMT, off western coast of Northern Sumatra, Indonesia. The epicentre was some 10 km under the seabed and 250 km south-southwest of Banda Aceh, Indonesia. The earthquake triggered a series of powerful Tsunami reaching more than 10 meters high, and these Tsunami waves moved through neighbouring countries of the Indian Ocean at 500 km per hour wrecking coastal areas in Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka, Thailand, and even some countries in eastern Africa, Kenya, Seychelles, Somalia and Tanzania. The Tsunami washed away homes, buildings, roads and bridges, causing massive human sufferings.

According to the CRED-EMDAT, the Indian Ocean Tsunami devastated the areas of coastline in India, namely Tamil Nadu, Andaman and Nicobar Islands, Andhra Pradesh, Kerala and Union Territory (UT) of Pondicherry, causing 16,389 people killed, 6,913 of injured, 647,599 of affected and US\$1,022,800,000 damage. The highest human losses were in Andaman and Nicobar Islands and the state of Tamil Nadu.

5-1-2. Dispatch of Multi-national Survey Mission

In April 2005, after the catastrophic Tsunami which destroyed the coastal areas of the Indian Ocean countries including India on 26 December 2004, ADRC dispatched a multi-national survey mission composed of government officials of member countries to the Tsunami affected areas in India, in active cooperation with the Ministry of Home Affairs, Government of India, as well as other member and advisor countries.

ADRC has always been keen to learn from the lessons gained from the major disasters in member countries in Asia and strengthen their capabilities for disaster reduction. However, it is often troublesome for the disaster affected areas to receive missions from abroad at the time of emergency. Furthermore, there are some constraints to dispatch survey teams to those areas due to political, socio-economic or cultural reasons. Considering the above, the multi-national mission provided a valuable opportunity for ADRC member countries. In the past, ADRC organised a multi-national mission to Gujarat after the devastating earthquake occurred in 26 January 2001, as part of the cooperative project with member countries.

(1) Objectives of Mission

The objectives of the survey mission were:

- (1) To assess the status of the damage and post-tsunami recovery;
- (2) To learn from the lessons of the tsunami disaster for further developing effective disaster prevention measures; and
- (3) To provide suggestions to the affected areas in the context of disaster risk reduction for the future.

(2) Schedule

Date	Day	AM/PM	Visits
8-Apr	Fri	AM	Visit to Ministry of Home Affairs (MoHA)
		PM	Visit to National Institute for Disaster Management (NIDM)
			Visit to UNDP
9-Apr	Sat	AM	Arrive at Trivandrum (Thiruvananthapuram)
		PM	Visit to tsunami affected villages in Kerala

Date	Day	AM/PM	Visits
10-Apr	Sun		Visit to tsunami affected villages in Tamil Nadu
11-Apr	Mon	AM	Arrive at Tiruchirapalli (Tiruchchirappalli)
		PM	Visit to tsunami affected villages in Pondicherry & Tamil Nadu
12-Apr	Tue		Visit to tsunami affected villages in Pondicherry & Tamil Nadu
13-Apr	Wed		Report to MoHA (NIDM)

(3) Participants

Country	Name	Title	Organization
Armenia	Dr. Alvaro Shavarsh ANTONYAN	President	Armenian National Survey for Seismic Protection (NSSP)
India	Mr. Amir Ali KHAN	Senior Research Officer	National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India
India	Mr. Shekhar CHATURVEDI	Research Associate	National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India
Japan	Ms. Michiko BAMBA	Researcher	Earthquake Disaster Mitigation Research Center (EDM), National Research Institute for Earth Science and Disaster Prevention (NIED)
Japan	Mr. Kenji MAEDA	Head, Fourth Research Laboratory	Seismology and Volcanology Research Department, Meteorological Research Institute
Singapore	Maj YAP Kok Boon	Division Commander	1st Civil Defence Division, Singapore Civil Defence Force
Singapore	Cpt GOH Boon Han	Senior Instructor	Civil Defence Academy, Singapore Civil Defence Force
Sri Lanka	Mr. Kalu Gamage WIJESIRI	Assistant Director	National Disaster Management Centre
Tajikistan	Ms. Nigina Sulaymonovna ALIEVA	Project Analyst	United Nations Disaster Risk Management Project, UNDP
France	Mr. Pierre-Andre LHOTE <i>(Delhi only)</i>	Attache for Science and Technology	French Embassy in India
USA	Mr. C. Balaji SINGH <i>(Delhi only)</i>	Project Manager	Disaster Management Unit, Office of the Social Development, USAID
USA	Mr. David A. HEESEN <i>(Delhi only)</i>		USAID
ADRC	Ms. Etsuko TSUNOZAKI	Senior Researcher	Asian Disaster Reduction Center

Country	Name	Title	Organization
ADRC	Mr. Takuzo ISHII	Senior Researcher	Asian Disaster Reduction Center
ADRC	Ms. Tae WATANABE	Administrative Assistant	Administrative Division, Asian Disaster Reduction Center

5-1-3. Overview of Survey

The Multi-national mission to tsunami affected areas in India led by the Asian Disaster Reduction Center (ADRC) based in Kobe, Japan was conducted from 8-13 April 2005. The members of the Mission were from Armenia, India, Japan, Singapore, Sri Lanka, Tajikistan and ADRC. Representatives from France and USA joined the Mission in the activities in New Delhi.

The mission visited the severely affected districts of Kollam and Alleppey in Kerala, Kanyakumari, Nagapattinam, Cuddalore, Kancheepuram and Chennai in Tamil Nadu and Karaikal and Pondicherry divisions of Union Territory of Pondicherry.

The methodology adopted by the Mission during the visit include to meet the officials at:

National level

- NDM division, Ministry of Home Affairs
- National Institute of Disaster Management (NIDM)



Fig.5-1-3-1 Visit to Ministry of Home Affairs

State and Union Territory level

- Relief Commissioners
- OSD (Relief & Rehabilitation)
- Other officials



Fig.5-1-3-2 Visit to UT Pndicherry Relief Commissioner's Office



Fig.5-1-3-3 Visit to Tamil Nadu State Relief Commissioner's Office

District level

- District Collectors and other district level officials
- Sub-division and block level officials



Fig.5-1-3-4 Visit to Kanyakumari District Collector's Office



Fig.5-1-3-5 Visit to Karaikul (Pondicherry) District Collector's Office



Fig.5-1-3-6 Visit to Cuddalore (Tamil Nadu) Collector's Office



Fig.5-1-3-7 Visit to Chennai (Tamil Nadu) City Mayor's Office

After meeting the officials, the Mission visited the severely affected villages and interacted with the affected communities. Preliminary discussions with officials on tsunami experience in their district prior to visiting the affected areas were very useful in providing insight about the affected communities, activities on response and relief operations, etc.



Fig.5-1-3-8 Survey in Kollam (Kerala)



Fig.5-1-3-9 Survey in Kanyakumari (Tamil Nadu)

It was observed that various kinds of temporary shelters had already been constructed and provided to a number of people affected by the tsunami, and a basic level of subsistence had been reconstructed for the residents. It was obvious that the recovery of livelihood of the affected people was a priority issue at the stage of rehabilitation and reconstruction, in particular, of the fishermen, who were most severely affected. They have received a special compensation from the government for what they had lost in the disaster. However, continuous support was required for their effective recovery of the communities.



Fig.5-1-3-10 Survey in Nagapattinam (Tamil Nadu)

5-1-4. Results of Survey

On the final day, the survey mission visited the National Institute for Disaster Management (NIDM) and reported to the Ministry of Home Affairs (MoHA), Government of India, on the observations and recommendations.



Fig.5-1-3-11 Reporting to MoHA at NIDM

After visiting the tsunami affected areas, the Mission has following observations.

Lack of:

- Awareness at all levels about disasters and disaster management in general, tsunami in particular;
- Preparedness at all levels about disasters and disaster management in general, tsunami in particular;
- Early warning system for tsunami;
- Implementation of norms and regulations (including Coastal Zone Regulation (CRZ) norms, building codes and byelaws);
- Hazard, vulnerability and risk assessment for disaster management;
- Appropriate database for disaster mitigation;
- Holistic approach towards disaster mitigation and management;
- Sufficient plantation along the coast; and
- Proper mechanism to identify the beneficiaries.

Positive observations regarding the activities carried out by all the stakeholders (governments, NGOs, communities, corporate sector, etc.):

- Good response afterwards after initial confusion;
- Coordinated efforts involving all the stakeholders;
- Enhanced awareness was observed in response to the tsunami warning on 28 March 2005 (due to Sumatra earthquake); and
- Tsunami disaster is considered to be an opportunity for improving disaster risk management.

Recommendations drawn by the Mission as well as the relief commissioners and district collectors are:

- Enhancement of public awareness to all hazards;
- Strengthening of preparedness at all levels;
- Establishment of an early warning system and a mechanism for its implementation;
- Communication system, which enables immediate information exchange daily and in times of disaster, should be in place;
- Redefining of the CRZ norms with practical approach;
- Structural measures to be taken up which may withstand the tsunami;
- Developing eco-fencing along the coastline;
- Sustainable efforts to build the capacity for disaster mitigation at all levels;
- To develop a mechanism for proper identification and distribution of relief after a disaster;
- To develop and maintain a contingency plan at the district level, which would help identify response capacities within each entity active in the area (government and NGOs) and to be utilized at times of disaster;
- Development of appropriate database necessary for disaster mitigation up to village level; and
- Incorporation of comprehensive disaster risk management in the local development plan.

All the members of the mission brought home many invaluable lessons learnt from the Indian government in the management of the Tsunami disaster. The multi-national mission also provided the opportunity for the members from ADRC member countries to interact and learn about the disaster management systems in their respective countries.

ADRC wishes to take the opportunity to extend its sincere appreciation to MoHA and NIDM, State Relief Commissioners and District Collectors of Kerala, Tamil Nadu and Podicherry for the kind assistance extended to the mission, which enabled the survey fruitful and productive.