

Final Report

Comprehensive Tsunami Disaster Prevention Training Course

L.P.Sonkar

India

Introduction

Many of the countries in the world, due to its geographical, topographical and metrological conditions, are subject to frequent natural disasters which may be due to typhoons, torrential rains, volcanoes, and draughts etc . As a result, every year there is a great loss of human lives and properties across the world. Most of the poor countries have neither the adequate resources nor the capability to take preventive measures to meet the challenges against these natural disasters. In case of Japan, the country is prone to many hazards such as earthquakes including Tsunami, distribution of active volcanoes, storm surge, fire and heavy snow etc which have caused extensive damages and thousands of peoples either die or lost. However the past history of Japan has made the people of Japan more disciplined and devoted to face any challenges whether it is natural disaster or economic challenges. These resulted in making one of the most resourceful country in the world in terms of the wealth and Knowledge. Since 1888 till 2005, Japan has faced about 60 major disasters of which 1896, 1933.1960 and 1995 disasters have been severe in terms of loss of people and properties. These large-scale disasters forced the country to develop the disaster management systems and the Disaster Countermeasures Basic Act and Disasters Management related laws were enacted .

Tsunami occurred on 26 th December,2004 in the Indian Ocean caused unprecented damage and destruction in India, Indonesia, Srilanka,Thailand and Maldives. Thousands of people lost their lives. Tsunami flattened number of houses, impaired Ports and jetties, damaged roads, resulted in loss of crops and increased salinity of lands. In fact most of the people had no knowledge about what Tsunami is. In India, Particularly, this was one of the major disasters. We had never faced this kind of natural disaster but the other kind of disasters such as earthquake, floods and draught in the past had taught us to take up the some measures. Although few of the measures in the area of reliefs, reconstruction and rehabilitation and Tsunami prevention measures were taken after Tsunami, but the Training Course on Comprehensive Tsunami Disaster in Japan had given us the opportunity to learn how best the countermeasures can be taken to mitigate the disaster.

Lessons from Lecture Classes

In the first two weeks of our training course we had lecture classes on different topics such as basic view point of disasters, Project Cycle Management (PCM), Outline of Tsunami, Problem of numerical calculation, History of Tsunami Forecast System, Types of tsunami induced disaster, Comprehensive regional tsunami prevention planning, Improvement of local resilience to Tsunami. Structural measures, Overview of tsunami counter measures in Japan, Discussion and practice on Coastal Vegetation and Tsunami hazard maps followed by field trip to JMA and PARI.,

In the lecture classes we learnt about the composition of Disaster Risks.

Disaster Risks= Hazards x Vulnerability =HxV,

In Disaster Risk, natural hazard is unavoidable but vulnerability is caused by basic societal weakness and exposure/ coping capacity which can be reduced by taking appropriate measures. such as removing the illiteracy of the people and providing livelihoods measures.

The Project Cycle Management (PCM) process can be very effective tool in meeting the long term goal / objective. The process consist of Planning, monitoring and evaluation by and, Project Design Matrix. Participatory. Transparency, Consistency and Legal are the basic characters of the PCM. It also helps in Stakeholders Analysis, Problem Analysis and Objective Analysis.

The coastal effects of tsunami included the wind wave, storm surge, submarine earthquake and eruption of volcano. We also learnt about Numerical Simulation of Tsunamis which can be a very useful tool to understand the impact of disaster in India.

History of Tsunami in Japan and enactment of various laws after the many disaster, River Act 1896 and its consequent amendment, Erosion Control Act.-1897, Disaster Relief Act, Disaster Recovery and Reconstruction and Financial Measures and Disaster Countermeasure Basic Acts were also explained during the lectures.. The basic concept of Disaster Management in Japan is based on three components namely: Self Help -70%, Mutual Support-20%, and public assistance-10%. .We also knew the basic structure of Japan i.e. National Govt. Prefecture Govts.(47), local area govt.(like City and Town- i.e.1800).

The component of Disaster Management Planning System are namely i) basic Disaster Management Plan prepared by Central Disaster Management Council, (ii) Disaster Management Operation Plan made by each designated Government organization, public corporation and (iii) Local Disaster Management Plan is made by each prefectural and municipal disaster management council.

Improvement of Local Resilience to Tsunami content (i) Tsunami Disaster Preventive Measures in Japan,(ii) Important of local disaster preparedness,(iii) mutual assistance and (iv) Self help.

There are many structural coastal and river mitigation facilities in Japan ranging from embankments, levees, revetment, tsunami water gates, evacuation shelters etc. Coastal structures often are protected / fronted by hard and soft measures beach vegetation. We also learnt about the importance and use of Coastal Forests for Tsunami Disaster Mitigation, , comprehensive disaster mitigation measures and integrated shore protection system. Empirical method for estimating the effect and limit was also explained.

The importance of tsunami hazard mapping and its preparation by local area people in co-ordination with city/local govt create not only awareness among the local people but also guides the evacuation routes. I think at the local level this type of map need to be prepared in our country.

The Japan Metrological Agency explained about the Local and Distance Tsunami and the function of the Tsunami Early warning system.. The experience of the control room of JMA was unique and such system need to built in country like India.

Field visits

Field visit to PARI was also very useful and an eye opener. Tsunami model experiment was unique and the impact of tsunami at 3.8 meter gave an idea of how devastating tsunami can be.

During the site visits we came across the various structural and non structural measures such as . the Fudai tsunami water gate constructed by the prefecture govt. at the cost of 3.6 billion yen completed in 12 years and Yamoto river tsunami gate biggest in Japan which was constructed at the cost of 11.628 billion yen ,many embankments at different locations,

The integrated approach of disaster management through the involvement of Self Help Group, mutual support and Public assistance in Japan has been unique in itself. All the stakeholders are well aware of their roles and responsibilities. The involvement of the stakeholders helps in maintenance of the structures of tsunami measures and gives them a feeling of ownership.

While most of the structures are very effective and can reduce the damage of the life and property to a large extent, awareness among the people about the disaster mitigation is very important and due to this at the time of disaster they can evacuate to safer places. The roles of the national, prefecture and local government are clearly understood by the stakeholders and local people. For example, community leaders of Nehama district at Houraikan mention that they knew that while the building and maintenance of embankments is the responsibility of the government, it was their responsibility to keep the government informed of any damage to the embankments and to ensure that the coastal forest are not destroyed. They also informed that they make aware to the visitor/tourist through regular drills. This shows the level of awareness among the community people.

Setting up of memorials for tsunami victim is another classic example of reminding people about the severity of tsunami.

Tsunami education in schools and in particular the play staged by the children in Ryori Elementary School is one such aspect which really impresses a lot. Similarly, the recitation of Inamura-no-hi by the children of Hiro Elementary School in the Hirokawa town was another classic example of educating the children about the potential dangers of disasters in particular tsunami.

Different city and prefecture level officials also demonstrated the simulation system based on past experience of tsunami and existing measures and explained about the future strategies.

In Sanriku Coast Area the main focus was on Structural measures where as in Kii peninsula the emphasis was on awareness of tsunami mitigation programme.

Impression of Tsunami countermeasures in Japan

In view of the above it is observed that the Govt. of Japan had taken adequate countermeasures to reduce the risks of tsunami earthquake by creating both Structural measures and Non Structural measures. They have built embankment, break water in the sea and also coastal forest at many places in the coastal area. They had also given the priority to the awareness programme. They have the system of regular drill. Interesting part is that the maintenance of the these measures are done by the community people with the help from prefecture govt. Unique part was the simulation system they have developed through which they can gauge the impact of tsunami of 1933 and can find out the damage which can take place with existing countermeasures. The functioning of Japan Metrological Agency in disseminating the information was excellent. Govt.of Japan has also enacted Disaster countermeasures Basic Act and various disaster management related laws. I think the foremost important thing in our country like India is to go for the awareness campaigning programme not only for the tsunami but for all kind of disaster which normally take place and how to involve the community and also the measures to be taken such as immediate evacuation to the higher place after getting the information. Although the Tsunami Early Warning System has already been set-up, it is to be ensured that how quickly the information can be reached to people. The idea of making the monuments at different places in disaster prone areas in india by giving the history of the tsunami earthquake or any type of natural disaster will help people to remain alert and go for quick evacuation.

Outline of the action plan for promoting tsunami countermeasures in India

I propose to advice the govt. to promote the following Tsunami countermeasures programme :

1. Awareness programme and the information dissemination system.
2. To review the existing legal framework for disaster management and to amend the act for tsunami countermeasures. in the line of disaster countermeasure basic act and other various law prevailing in Japan,if needed.
3. To review the exiting Structural and Non-structural measures and to take the suitable measures location wise based on the study.

Awareness Programme

In the School level education system so far the course on Disaster and the preventive measures have been introduced at class VIII and IX th standard but it needs to be started at elementary education system .Thus the children have to know about natural disaster and also about the preventive measures. Normally the parents are not aware about what is disaster, particularly the Tsunami disaster. They have to be also informed through either Parent –Teacher meeting or the society / community should inform them by meeting them or by circulating the pamphlet.The major problem in India is still the people at coastal area and even other area is not educated. In this situation Voluntary Group has to go to the people and to make them aware about tsunami counter measures.

About the information system, although we have already set up the Tsunami Early Warning System, but what we need to link with the broadcasting system and also to ensure that the information is communicated to the local level. Strengthening below district level warning system in the State/UT and system of warning of fishermen in coastal waters, high seas and coastal communities are to be taken on the line of systems prevailing in Japan.All programs submitted need to have synergy with the Tsunami Early Warning System initiated by the Department of Ocean Development, Government of India.

Legal Framework

Just after the Tsunami ,in 2005, Disaster Management Bill was passed by the Parliament and National Disaster Management Authority (NDMA) has been set up at the Centre and the State Disaster Management Authority (SDMA) at the State level. .However the existing rules and the acts need to be reviewed and amended if needed . in the line of disaster countermeasure basic act and other various law prevailing in Japan which are very effective. It will help in strengthening the institutional arrangements for effective disaster management besides accountability and responsibility for assigned task to different authorities at the National, State and District level.

Structural and Non-structural measures

India has the coastal length of about 6500 kms covering thirteen states. Even before the occurrence of the Tsunami in the Indian coast, there were structural and non structural measures existing. The seawall in karaikal district of Pudducherry was prepared by the French people when they were ruling in that state but this sea wall got damaged due to Tsunami. Some of the coastal forests which were existed before tsunami also got damaged..The programme can be envisaged as under

Bio-Fencing

Mangrove plantations along the coastline as shelterbelts preferably through Joint Forest Management mechanism.

Sea walls

Repair of existing coastal protection infrastructure and construction of **New Sea Walls** can be done based on scientific study to determine the location-specific mitigation measures considering the likely environmental impacts. New sea wall works will be taken up in the second phase of the Tsunami Rehabilitation Program.

In my action report, I have explained about the role of Reconstruction and Rehabilitation of Tsunami damages which have been explained in the country report along with schedule of action plan.