

## Pre disaster planning and preparedness for earthquake in India: A review

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### Abstract

Earthquake is one of the most damaging natural disasters on earth. Earthquake consequences can cover hundreds of thousands of square km's; cause destroy to structures and infrastructures facilities, that may results in loss of many life and major injury to hundreds of thousands of people, and disrupt the social and economic functioning of the affected area. Although it is impossible to prevent earthquake from taking place, but it is possible that we can mitigate the effects and to reduce loss of many life, injuries and damages. The researches done by the author's involves exploration and provision of the problems created by damaging earthquakes. The research work covers the seismic menace assessment,; susceptibility and risk studies of structures and infrastructures; practical application of new inventive products for earthquake disaster solutions, such as new types of base isolators, dampers; sensors and intellectual system in monitoring and managing earthquake-resistant structures and facilities. The there are some other aspects of this disaster

- vision- Zero Tolerance to avoidable deaths due to earthquakes.
- mission- To formulate Guidelines for the preparation of plans to reduce earthquake risk, and minimize the impact, loss of lives and damage to property caused by earthquakes.

### Introduction

An earthquake can be defined as the series of vibrations on the earth's surface caused by the generations of elastic (or) seismic wave due to sudden deformation or rupture within the earth during the releases of an accumulated strain energy. Indian mainland is highly defenseless, to earthquakes; (As per seismic zoning, as much as 59% of India's land region could face modest to harsh earthquakes). Given the high seismic risk and earthquake vulnerability in

India;, inclusive;, institutionalized and coordinated mechanism are required for effective disaster mgt. at the nationwide, statewide, and districtwide levels, which should include -

**1. Analyzing the risk:-**

- functioning the susceptibility mapping of earthquake-prone areas and creating supply of resources for effective response.
- An recognition of the serious areas which necessitate special concentration;
- Analyzing and documenting the lessons learnt from preceding earthquakes , and working over future stratagem in coping comparable emergencies in future ;
- intensification of urgent situation response potential in earthquake prone areas;
- Estimating the level of harm to living and possessions in the occurrence of an earthquake ( so that appropriate disaster managing strategies can be evolve ).

**2. Predicting the risk:-**

Predict the Earthquakes-The short- or mid-term forecast of earthquakes is tricky; but use of animal actions in predicting earthquakes can recommend some assist.

**3. Precautionary measures:-**

- a. The pre-disaster preparedness** based on systematic and practical principles (with special focus on building technique). This forms an imperative foundation of earthquake disaster mitigation efforts -
- Seismic security of artificial structure such that it ensures the structure do not disintegrate.
  - Revision of town preparation bye-laws and acceptance of model bye-laws.
  - Assessing the seismic susceptibility of the accessible buildings by carrying out structural safety audit.
  - Increasing seismic intensification & setting up standards and guiding principle for existing upcoming decisive lifeline structures & also of buildings of nationwide significance
  - Undertaking compulsory technical audits of structural design of foremost projects like dams, bridges etc.
  - Amalgamation of earthquake anti design features in the new buildings.

- Ensuring the fulfillment of earthquake-resistant building code, city preparation laws and other safety rules.

**b. Refining masses & the function of community participation**

- Introducing earthquake safety instruction in schools, colleges and universities.
- Conducting mock drills for greater public awareness.
- Participation of the community at the local level in the planning, implementation and monitoring processes.
- Launching public alertness campaign on seismic safety and threat diminution.
- Technical instruction following inclusive curriculum linked to earthquake management.

**c. Medical emergency & preparedness –**

- The emergency medical arrangement to be straight away put to work on getting information from the earthquake unnatural areas.
- Punctual and proficient emergency medical reply with effective reach to affected ample.
- Resuscitation, triage and medical evacuation of victims who require hospitalization,
- Appropriate analysis will be provided to the sufferers suffering from psycho-social distress.

**d.** Creation “**Disaster Response Force**” battalion in high seismic danger zones, guidance and equipping them.

**e.** A brief evaluation of the position of earthquake management efforts occasionally.

**4. Response/ Emergency measures**

Emergency respite measures –

- Planning and setting up emergency shelter, respite camp for people exaggerated
- Distributing relief amongst the affected community,
- Identifying misplaced people and initiation search & salvage operations for them,

- Addressing the desires like- health care, water provide and cleanliness, food etc.,
- Deployment of military for post-earthquake response employment,
- Establishing systems for proper recognition of the departed, recording the facts of victims, and their DNA fingerprinting.

#### **5. Rehabilitation & Recovery:-**

- Steps to be taken to make sure adequate nutrition, therapeutic services, water & cleanliness services.
- Providing psychosomatic care and communal support,
- Re-housing of those render shelter-fewer after-quake,
- Rehabilitate amputees and other disable
- Providing them through opportunities for earning living wage & arrangement.

#### **Challenges ahead –**

- More R&D is desired on –“How to improve seismic protection?”
- insufficient numbers of skilled and capable civil engineers, structural engineers, architects and masons skillful in earthquake-resistant design and manufacture of structures.
- Revising the prospectus in professional courses, incorporate disaster management in them.
- require of generating public alertness on seismic risk decrease features in non-engineered manufacture in earthquake-prone area.

#### **Executive Summary**

The Disaster Management Act, 2005 (DM Act, 2005) lays down institutional and coordination mechanisms for valuable disaster management (DM) at the national, state, and district levels. As mandate by this Act, the Government of India (GoI) created a multi-tiered institutional system consisting of the National Disaster Management Authority (NDMA), headed by the Prime Minister, the State Disaster Management Authorities (SDMAs) by the Chief Ministers and the District Disaster Management Authorities

(DDMAs) by the District Collectors and co-chaired by elected representatives of the local authorities of the respective districts. These bodies have been set up to facilitate the prototype shift from the till now relief-centric approach to a more upbeat, holistic and included approach of intensification disaster preparedness, alleviation and emergency response.

Soon after the NDMA was set up, a series of consultation were initiated with various stakeholders to assist the expansion of guidelines for escalation earthquake management. Senior legislative body from government department and agency, academics, professionals, polygonal and compassionate agencies and commercial sector representatives participated in these meetings. These meetings recognized that several initiative taken up by government agencies in the recent past have been significant and far-reaching, but they also painted the need for a holistic and integrated strategy. On the basis of these negotiations, the NDMA has prepared these procedure for the Management of Earthquakes, (here in after referred to as the procedure), to assist the ministries and department of the GOI, state governments and other agencies to prepare DM plans.

### **Earthquake Risk in India**

India's high earthquake danger and susceptibility is obvious from the fact that about 59% of India's land area could face modest to harsh earthquakes. through the era 1990 to 2006, more than 23,000 life were lost due to 6 main earthquakes in India, which also caused massive damage to property and civic infrastructure. The incident of several troubling earthquakes in areas hitherto calculated safe from earthquakes indicates that the build environment in the country is tremendously fragile and our capacity to get ready ourselves and efficiently respond to earthquakes is derisory. through the International Decade for Natural Disaster Reduction (IDNDR) experiential by the United Nations (UN) in the 1990s, India witness several earthquakes like the Uttarkashi earthquake of 1991, the Latur earthquake of 1993, the Jabalpur earthquake of 1997, and the Chamoli earthquake of 1999. These were follow by the Bhuj earthquake of 26 January 2001 and the Jammu & Kashmir earthquake of 8 October 2005.

### **Conclusion**

To figure up;, we can say that;, an growing need is being felt for orderly, holistic and integrated exertion to address the dangerous areas of concern dependable for the weak seismic safety measures ; & formulating an “**Earthquake Management Plan**” covering all aspects like earthquake attentiveness, mitigation, public alertness, capacity building, guidance, education, Research and Development (R&D), documentation, earthquake reaction, cure and recovery with a negligible loss of life and damage to belongings, assets and transportation.



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