

**6<sup>th</sup> sem. Hons., CC-14,  
Study material prepared by Surajit Let**

**EARTHQUAKE MANAGEMENT FRAMEWORK**

Policy makers sought to prepare planning and various policy measures in advance to anticipate unexpected and recurrent earthquake hazards, and its risk to human life and property. In this process there are four generic phases of disaster management activities that are initiated, and each phase is attached with separate activities- depending upon whether it is before, during, or after the particular disaster. In fact the process of developing and implementing policies that are mainly concern with · mitigation, preparedness, responses and recovery activities.

Otherwise if we put it more clearly these processes can be divided into Predisaster measures

I. Mitigation

2. Preparedness During disaster period
3. Response or Rescue and Relief Post-disaster measures
4. Recovery or Rehabilitation and Reconstruction.

Mitigation: The first stage of emergency management activity in earthquake hazard is mitigation. Mitigation may involve modifying the courses of hazard or reduce the vulnerability to the event or distributing losses. For instance, as U.S. National Governors Association (1979) puts it: mitigation measures activity that actually eliminate or reduce the possibility of occurrence of a disaster . . . . it also includes activities that are designed to foretell the effects of a disaster .... (and) those which help to distribute the cost of disaster recovery.

Mitigation activities reduce the degree of long-term risk to human life and property from earthquake hazards through various measures such as building codes, disaster insurance, land use management, risk mapping, safety codes and tax 45 incentives and disincentives. The following questions are important in mitigation activities, that are,

What is the nature of the earthquake hazard?

- What is probability of occurrence with various magnitude?
- What is the area population at risk and the vulnerability?
- What are the cost implications of the risk?
- What are the time constraints?
- What is the acceptable level of risk?

What type of policy should we follow?

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- What we have to do after and what are the consequences?

Preparedness: Refers "... the activities closest to the onset of a disaster which minimises disaster damage and enhance disaster response operations". Basically, preparedness concern with three activities mainly, developing a response plan and providing education and training; identification of critical resources; and development of necessary agreements among responding agencies both within the jurisdiction and other areas.

As McLoughlin (1985) suggests preparedness activities that develop

operational capabilities for responding to an emergency, that includes, emergency operation plans, emergency communication, emergency public information, mutual agreements, resource management plans and training and exercises are important among them.

Decision makers need to gather the following information for a better preparedness: What are inventories or emergency resources and where are they located? What local jurisdiction may be involved? What are the costs and dimension of preparedness policies (For instance, stock piling and other services); What kind of atmosphere can be generated for the emergency training operation? and What are the organizations that will response these activities?

Response: Response is the third phase in earthquake management activities taken immediately during or directly after an emergency that saves lives and minimize property damage. These activities includes search and rescue, emergency plan activation, system mobilization, emergency instruction to the public, emergency medical assistance, emergency assistance for victims, and so on.

There are many questions important for a proper earthquake management in 52 response phase; They are , What local jurisdiction may be involved? What situation assistance procedures have been identified and adopted? How is the damage reporting system operating? What are inventories of emergency resources and where are they located? and Any binamical assistance been initiated from the central government, state government or any other source in response activities ?

**Recovery:** Providing immediate support during early recovery period to return necessary vital systems and continuing to provide support until the community returns back to normal situation. Basically these activities falls into are either short term restoration activities or long term reconstruction efforts. Such activities are debris clearance, contamination control, disaster unemployment assistance, temporary housing and facility restoration. Decision makers are bound to raise, many questions regarding the recovery activity which are as follows. : What is the area and population at continued risk and their vulnerability? What are the geographic areas of damage? What are the short, medium and long term damages? What jurisdictions may be

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involved in recovery? What recovery assessment procedures have been initiated? How is the recovery reporting system operating? What lifeline or other crucial facilities are attracted? What alternatives do we have and what are their consequence? What are the tasks, priorities, budget and schedule of the recovery programme? What are nature and impact of state and central assistance? and What long-term measures requirements arise and where?

Where as, FEMA ( 1982) emphasis four overlapping activities in recovery period. They are emergency period, restoration period, reconstruction I and reconstruction II.

**Emergency period:** Emergency period is few weeks after an earthquake occurrence, The primary activities are search and rescue, providing mass feeding and shelters, and debris removal. During this time normal communities social and economic activities are disrupted.

**Restoration period:** Activities focused on restoration of repairable utilities, housing and commercial infrastructure facilities are important in this period. This phase usually last for several months. The end of Restoration period is marked by the return to relatively normal social and economic activities.

**Reconstruction 1:** During this period the emphasis is more on replacement of buildings, and mostly concern with social and economic activities that usually return to pre-disaster level.

**Reconstruction II:** During the long-range phase, the activities focus on commemorative, betterment and developmental reconstruction making the community's betterment or improvement and serve future development.

Reconstruction following disaster define serious basic and inter related policy issues that usually confront after a disaster. Basically there are seven basic as following:-

Should normal or extraordinary decision reconstruction issues making mechanisms be used in deciding how, when and where to rebuild the community?

Should there be change in land use?

Should the building code be change?

Is it already existed or need to be established?

How disaster produced personal and family problem should be handled?

How the increased local expenditures should be financed?

Should there be compensation or special financial assistance for private property loss?

and Should a concerted effort be made for the community to be more efficient and participate in on going reconstruction activities?

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Once the jurisdiction has completed its risk and vulnerability analysis and estimated its probable economic losses, then it must identify measures for reducing expected losses and combine them into an effective earthquake hazard mitigation strategies. Such a strategy should be incorporated with a set of goals, policies and tools for reducing or minimizing human and property losses from resulting disasters. Importantly these measures will be taken in advance. Each local government is required to adopt a hazard mitigation plans, identify hazard areas, risk and vulnerability to damage and set forth goals and policies to guide both new development and reconstruction activities.