

CHAPTER VIII

DISASTER MITIGATION PROGRAMME COMPONENT

1. **Earthquake:** -The total mitigation programme, which will reduce the impact of a severe earthquake on the community, can be divided into three phases as follows:

Preventive Phase Before Disaster

- (i) Preparation of earthquake catalogues and epicentral and geological-tectonic maps;
- (ii) Analysis of seismic risk and seismic zoning for general purposes;
- (iii) Development of antiseismic codes of design and construction of various structures;
- (iv) Education and training of engineers and architects in earthquake engineering principles and use of codes;
- (v) Promulgation of laws and bye-laws for providing earthquake resistance features in all new construction according to the codes;
- (vi) Development of methods for seismic strengthening of existing structures, particularly in the structures considered critical for the community;
- (vii) Development of simple methods for upgrading the seismic resistance of traditional non-engineered construction and their dissemination to the common builders and owners by mass communication techniques, demonstrations, extension work, etc;
- (viii) Earthquake insurance for the buildings and structures to reduce the economic impact on individuals; and
- (ix) Installation of seismological observatories for monitoring seismic activity with a density of instruments capable of recording and locating all earthquakes bigger than a selected magnitude.

Emergency Phase just after occurrence of Disaster.

Action points	Officers responsible
(i) Maintenance of law and order	District Magistrate, Superintendent of Police
(ii) Evacuation of people	Army, Police, Civil Defence, Fire Brigade, and Linkage Team
(iii) Recovery of dead bodies and their disposal	Police, Civil Defence and Linkage Team
(iv) Medical care for the injured	District Medical and Health Officer
(v) Supply of food and water and restoration of water supply lines	Executive Engineer PHE, Deputy Director of Supply and Relief Team
(vi) Temporary shelters like tents, metal sheds	PWD and Shelter Management Team
(vii) Restoring transport routes	PWD, Police and BDO concerned
(viii) Restoring lines of communication and information	Communication, District Information Officer.
(ix) Quick assessment of damage and demarcation of damaged areas according to grade of damage	EAC(R), PWD and BDO concerned

(x) Cordoning off severely damaged structures liable to collapse during aftershocks	Police, Fire Brigade, Home guards
(xi) Temporary shoring of certain precariously standing buildings to avoid collapse and damage to other adjoining buildings	PWD, Police and BDO concerned
(xii) Immediate actions to prevent certain chain –reactions from developing, such as release of water from the reservoir behind a damaged dam to avoid flooding of areas if the dam fail, emptying of containers of toxic or inflammable liquids and gases, treatment of environment for preventing spread of diseases, etc	Executive Engineer (Irrigation), MeSEB, DM&HO, District Agriculture Officer.
(xiii) Collection of scientific data from field observations as well as from instrumentation specially deployed in the affected area to monitor the aftershocks	District Information Officer, and Headmen.
(xiv) Preparation of proposals about reconstruction requirements and strategy to be adopted and whether reconstruction opportunity could also be utilized for affecting socio-economic development of the damaged area.	PWD, Irrigation, District Agriculture Officer, District Horticulture Officer.

Consolidation and Reconstruction Phase

- (i) Detailed survey of buildings for assessment of damage and decision regarding repair, restoration and strengthening or demolition
- (ii) Repair, restoration and seismic strengthening or demolition;
- (iii) Selection of sites for new settlements;
- (iv) Adoption of strategy for new construction, such as, through contractors, through self-help, construction of core houses only, or supply of construction materials only, etc
- (v) Execution of the reconstruction programme;
- (vi) Preview of existing seismic Zoning maps and risks maps;
- (vii) Review of the seismic codes and norms of construction;
- (viii) Training of personnel, engineers, architects, builders and artisans ; and
- (ix) Statistical studies regarding the earthquake.

2. **Cyclone:-** The total mitigation programme which will reduce the impact of a cyclone on the community includes the following:-

Preventive phase before the disaster

- (i) Control room to be made functional on a 24 hours basis.
- (ii) Storage of food grains and dry food at the relief godowns to be distributed to victims during disaster.
- (iii) Storage of medicine and vaccines by the medical and veterinary department to take preventive measure for the spread of epidemics.
- (iv) Listing and updating of the existing equipments that will be needed during disaster

- (v) Analyses of cyclone prone areas
- (vi) Analyses of shelter place for cyclone
- (vii) Creating an awareness to the people regarding the do's and don'ts at the time of cyclone
- (viii) Proper warning and information dissemination for immediate relief, first aid and mutual cooperation

Emergency Phase just after occurrence of Disaster.

Action points	Officers responsible
(i) Maintenance of law and order	District Magistrate, Superintendent of Police
(ii) Evacuation of people	Army, Police, Civil Defence, Fire Brigade, and Linkage Team
(iii) Recovery of dead bodies and their disposal	Police, Civil Defence and Linkage Team
(iv) Medical care for the injured	District Medical and Health Officer
(v) Supply of food and water for victims	Executive Engineer PHE, Deputy Director of Supply and Relief Team
(vi) Temporary shelters like well constructed buildings	PWD and Shelter Management Team
(vii) Restoring transport routes	PWD, Police and BDO concerned
(viii) Restoring lines of communication and information	Communication, District Information Officer.
(ix) Supply of veterinary medicines to affected cattle	District veterinary officer
(x) Supply of water supply, medicines ,electricity ,medical aid and veterinary aid at the shelter place	By the concerned department
(ix) Quick assessment of damage and demarcation of damaged areas.	EAC(R), PWD and BDO concerned
(xii) Immediate actions to prevent to prevent spread of epidemics, etc	District Medical & Health Officer.

Consolidation and Reconstruction Phase

- (i) Restore supply of water in the area as quickly as possible
- (ii) Restore supply of electricity by repairing dismantled wires and clearance of fallen electric poles
- (iii) Ensure supply of food and other essential commodities to victims freely or at concessional rates.
- (iv) Detail reports of the damage to be prepared.
- (v) Statistical study of cyclone risk area.
- (vi) Survey of the affected area to assess the damage caused to the dwelling place ,crops and losses of human lives, livestock etc
- (vii) Review of the situation by the district administration to ensure proper functioning of relief operation

3. **Floods**:-the total mitigation programmes which will reduce the impact of a flood on the community can be divided as follows:-

Preventive Phase Before Disaster

- (i) Identification of flood prone areas
- (ii) Identification of concentration of human population in vulnerable flood prone areas
- (iii) Collecting of daily information on the flood scenario of the district
- (iv) Proper storage of food and dry food to ensure immediate relief to the people at the time of a disaster
- (v) Assessment of the availability of equipments that will be needed at the time of floods
- (vi) Collection of data like amount of rainfall and water level on an every day basis
- (vii) Creating an awareness to the public the relation between deforestation and man-made disaster
- (viii) Creating of water shed to prevent floods and ensure supply of water during dry season
- (ix) Preparing of alternate route maps
- (x) Discourage settlements near river banks as they are more susceptible to floods
- (xi) Insurance of dwelling houses to reduce economic impact on the people
- (xii) Checking encroachment of human settlement near river banks .

Emergency Phase just after occurrence of Disaster.

Action points	Officers responsible
(i) Maintenance of law and order	District Magistrate, Superintendent of Police
(ii) Evacuation of people	Army, Police, Civil Defence, Fire Brigade, and Linkage Team
(iii) Recovery of dead bodies and their disposal	Police, Civil Defence and Linkage Team
(iv) Medical care for the injured	District Medical and Health Officer
(v) Supply of food and water and restoration of water supply lines	Executive Engineer PHE, Deputy Director of Supply and Relief Team
(vi) Temporary shelters like highland and ground shelter to affected victims	PWD and Shelter Management Team
(vii) Restoring transport routes	PWD, Police and BDO concerned
(viii) Restoring lines of communication and information	Communication, District Information Officer.
(ix) Supply of veterinary medicines to affected cattle	District veterinary officer
(x) Supply of water, medicines ,electricity and veterinary aid at the shelter place	By the concerned department
(ix) Quick assessment of damage and demarcation of damaged areas.	EAC(R), PWD and BDO concerned
(xii) Immediate actions to prevent to prevent spread of epidemics, etc	District Medical & Health Officer.

Consolidation and Reconstruction Phase

- (i) Survey of the affected area and makes detail report about the extend of damage cause by the flood
- (ii) Medical team to make regular visit to the affected areas to prevent the spread of epidemics
- (iii) Restore roads and power supply to the affected areas
- (iv) Restore supply of safe drinking water to the affected areas
- (v) Adequate and speedy credit to the farmers for purchasing agricultural inputs and cattles
- (vi) Mobile health teams to be mobilized in the affected areas
- (vii) Cleaning of drainage channels
- (viii) Ensure supply of food to the victims at concessional or free of cost.

4. **Landslides**: The total mitigation programmes that will reduce the impact of landslides on the community can be divided as follows:

Preventive phase before the disaster

- (i) Identification of landslides prone areas.
- (ii) Enforce land-use and building ordinances in areas susceptible to landslides and debris flows.
- (iii) Discourage construction of buildings on steep slopes or near streams and rivers.
- (iv) Encourage afforestation to prevent erosion of soil and minimize landslides.
- (v) Construction of retaining walls and other structures to bring greater stability to dangerous slopes.
- (vi) Construction walls of piles in slope areas to prevent landslides.
- (vii) Assessment of the availability of equipments that would be needed at the time of landslides and regular updating of them
- (viii) Preparing of an alternative route map

Emergency Phase just after occurrence of Disaster.

Action points		Officers responsible
(i)	(i) Maintenance of law and order	District Magistrate, Superintendent of Police
(ii)	(ii) Evacuation of people	Army, Police, Civil Defence, Fire Brigade, and Linkage Team
(iii)	(iii) Recovery of dead bodies and their disposal	Police, Civil Defence and Linkage Team
(iv)	(iv) Medical care for the injured	District Medical and Health Officer
(v)	(v) Supply of food and water and restoration of water supply lines	Executive Engineer PHE, Deputy Director of Supply and Relief Team
(vi)	(vi) Temporary shelters for affected victims	PWD and Shelter Management Team

(vii)	(vii) Restoring transport routes	PWD, Police and BDO concerned
(viii)	(viii) Restoring lines of communication and information	Communication, District Information Officer.
(ix)	(ix) Supply of veterinary medicines to affected cattle	District veterinary officer
(x)	(x) Supply of water supply, medicines ,electricity ,medical aid and veterinary aid at the shelter place	By the concerned department
(xi)	(ix) Quick assessment of damage and demarcation of damaged areas.	EAC(R), PWD and BDO concerned
(xii)	(xii) Immediate actions to prevent to prevent spread of epidemics, etc	District Medical & Health Officer.

Consolidation and Reconstruction Phase

- (i) Clearance of roads in the landslides affected areas
- (ii) Survey of the affected area and makes a detail report of the damage cause by a landslide
- (iii) Selection of sites for new settlements;
- (iv) Restore supply of safe drinking water and electricity to the affected areas as early as possible
- (v) Detail study of the area and adoption of new strategy for construction
- (vi) Review of the relief operation undertaken during disaster by the district administration

5. Fire accidents; The total mitigation programmes that will reduce the impact of fire accident on the community are as follows:

Preventive phase before the disaster

- (i) Listing and updating of resources both man-power and machinery that would be needed at the time of a disaster
- (ii) Creating an awareness through public campaign, workshops and seminars for prevention of fire hazards
- (iii) Insurance of life , building and structures to reduce the economic impact on the people
- (iv) Training of Volunteers at the village level on preventive measures and extinguishing skills on fire
- (v) Proper communication system for early warning and mutual aid and cooperation should be ensured
- (vi) Location wise infrastructures availability both physical and human resources will be listed in case of emergency.

Emergency Phase just after occurrence of Disaster.

Action points		Officers responsible
(i)	(i) Maintenance of law and order	District Magistrate, Superintendent of Policez
(ii)	(ii) Immediate actions to prevent the spread of fire to neighbouring places	Police, Fire service Department
(iii)	(ii) Evacuation of people	Army, Police, Civil Defence, Fire Brigade, and Linkage Team
(iv)	(iii) Recovery of dead bodies and their disposal	Police, Civil Defence and Linkage Team
(v)	(iv) Medical care for the injured	District Medical and Health Officer
(vi)	(v) Supply of food and water and restoration of water supply lines	Executive Engineer PHE, Deputy Director of Supply and Relief Team
(vii)	(vi) Temporary shelters for affected victims.	PWD and Shelter Management Team
(viii)	(ix) Supply of veterinary medicines to affected cattle	District veterinary officer
(ix)	(x) Supply of water , medicines ,electricity and veterinary aid at the shelter place	By the concerned department
(x)	(ix) Quick assessment of damage and demarcation of damaged areas.	EAC(R), PWD and BDO concerned
(xi)	(xii) Immediate actions to prevent to prevent spread of epidemics, etc	District Medical & Health Officer.

Consolidation and Reconstruction Phase

- (i) Assessment of the causes and impact of fire
- (ii) Detail report on the impact of fire
- (iii) Compensation and relief to the victims

6. **Chemical disaster**:- the total mitigation plan that will reduce the impact of a chemical disaster on the community are as follows:-

Preventive phase before the disaster

- (i) Insurance of life , buildings and structures to reduce the economic impact on the people
- (ii) Ensure proper ventilation in the industrial buildings
- (iii) Promulgation of building ordinance that construction of industries should be located in an area away from human settlements
- (iv) Analysis of gases, leakage of which could be fatal for the people
- (v) Analysis of resources and equipments that would be helpful at the time of a disaster and regular updating of it
- (vi) Review of the safety status of the industry by the district administration

- (vii) Analysis of industries which are highly prone to chemical disaster and leakage of poisonous gases
- (viii) Proper communication system for early warning and mutual aid and cooperation should be ensured

Emergency Phase just after occurrence of Disaster.

Action points	Officers responsible
(i) (i) Maintenance of law and order	District Magistrate, Superintendent of Police
(ii) (ii) Evacuation of people	Army, Police, Civil Defence, Fire Brigade, and Linkage Team
(iii) (iv) Medical care for the injured	District Medical and Health Officer
(iv) (v) Supply of food and water to the affected victims	Executive Engineer PHE, Deputy Director of Supply and Relief Team
(v) (vi) Temporary shelters to affected victims	PWD and Shelter Management Team
(vi) (x) Supply of water, medicines, electricity at the shelter place	By the concerned department
(vii) (ix) Quick assessment of damage and demarcation of damaged areas.	EAC(R), PWD and BDO concerned
(viii) xii) Immediate actions to prevent to prevent spread of epidemics, etc	District Medical & Health Officer

Consolidation and Reconstruction Phase

- (i) Survey of the affected area and assessment of damage.
- (ii) Details report of the damage
- (iii) Detail study of the area and adoption of new strategy for construction
- (iv) Restore services by repairing defective connections that leads to the leakage of gas
- (v) Cleaning up of the surrounding to make sure that the air is clean and the condition is fit for resuming work.