

Risk Assessment and Disaster Management Plan

Disaster, in this context, means a sudden, accidental event that causes many deaths and injuries. Most disasters also result in significant property damage. Common natural causes of disasters include earthquakes, floods, hurricanes and typhoons, and tornadoes. Tsunamis (popularly, but incorrectly, known as tidal waves), volcanic eruptions, wildfires, and landslides and avalanches rank among the other natural forces that sometimes create disasters.

Not all disasters are produced by the forces of nature. Many modern-day disasters involve accidents aboard passenger-carrying airplanes, ships, or railroads. Other "man-made" disasters can be traced to the collapse of buildings, bridges, tunnels, and mines, as well as to explosions and fires unintentionally triggered by humans.

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes, and landslides have been a recurrent phenomena. About 60% of the landmass is prone to earthquakes; over 40 mha is prone to floods; about 8% of the total area is prone to cyclones, and 68% of the area is susceptible to drought. In the decade 1990-2000, an average of about 4344 people lost their lives and about 30 million people were affected by the disasters every year. The loss in terms of private, community, and public assets has been astronomical.

The recent Cyclone in Orrisa and the most recent floods in Uttarakhand underscored the need to adopt a multi-dimensional, multi-disciplinary and multi-sectoral approach and incorporation of risk reduction in the developmental plans and strategies. The latest paradigm proceeds from the conviction that development cannot be sustainable unless disaster mitigation is built into the development process, which has to span across all sectors of development. The new policy also emanates from the belief that investments in mitigation are much more cost-effective than expenditure on relief and rehabilitation. The role of disaster management in our country assumes more significance as it is the poor and the under-privileged who are worst affected.

The disaster management approach entails a National Disaster Framework (a roadmap) covering institutional mechanisms, disaster prevention strategy, early warning system, disaster mitigation, preparedness and response, and human resource development.

Disaster Assessment

Major hazards can be generally associated with the potential of fire, flood, or earthquake. Hazard control system is meant to ensure the avoidance of the hazards, or in case of any mis-happening minimum possible impact on residents and surrounding environment.

Disaster management requires multi-disciplinary and pro-active approach. The mission is vulnerability reduction to all types of hazards, be it natural or manmade. The various prevention and mitigation measures should aim at building up the capabilities of the communities, voluntary organisations, and the Government functionaries at all levels.

Most of the situations are likely to be in the category of *Level 1 Emergency* (a local incident with a likely impact only to immediate surroundings of local site, where the impact radius may not be more than 15

m, such as, local fire, etc.) or *Level 3 Emergency* (an incident with likely impact area extending beyond the boundary limits of the project area, such as, floods, earthquakes, etc.).

On site emergency management will meet the exigency created due to all Level 1 emergencies. Level 3 emergencies need off-site management plan.

Disaster, in this situation, may include incidences of flood, earthquake, fire, or disruptive incidents of human extremism. While the incidences of natural disaster are remote, these may result in significant loss of life and property. There is no fire sensitive establishment within or vicinity of the project. Adequate, fire fighting arrangement at micro level will be provided by the promoter.

The construction specifications adopted by the promoters significantly incorporate fire-retarding properties. **Adequate, fire fighting arrangement at micro level will be provided by the promoter.** In case of mishap, suitable provisions for emergency evacuation will be incorporated.

To contain the retrospective effects, only government authorities and agencies, at local and state level got to be adequately prepared in its mechanism to contain or minimize the losses arising thereof.

Disaster Control System

The control system needs to include;

- a) Enactment of appropriate legislation at national and state levels
- b) Identification of major disasters
- c) Establishment of a core institutional group(s) appropriately controlled by the governments at national, state, and local level.
- d) Setting up authority and control structure at all levels
- e) Training and capacity building
- f) Emergency planning for actions on site
- g) Emergency planning for actions off site
- h) Preparing a checklist of periodic requirements

Prevention and Control

Identification of hazards is the starting point for a system of prevention and control. The causes and sources need to be delineated. The probability and extent (magnitude) of their likelihood will also be estimated.

With this background information, every effort will be made to have a safest possible system, under the given constraints. The identified hazards need to be taken care of by;

- a) Incorporating safety and precautionary features at design, execution, and commissioning stages of development.

- b) Identifying and setting early warning indicators.
- c) Carrying out preventive measures periodically.
- d) Identification and regular monitoring of the potentially accident/hazard prone domains.

Training and Information

While technical measures are essential for the safety, the role of people in management of disasters can not be ignored. The people can have a negative as well as a positive influence on the safety.

It is important to train not only the persons directly involved by the virtue of official authority or institutional affiliations (including NGOs), but also the general public by appropriately disseminating information on;

- a) Possible disaster prone situations and extent of impact.
- b) Experience in similar situations elsewhere.
- c) Expected response and measures.
- d) Role of various constitutional authorities.

Response Planning and Management

The overall objectives of an emergency plan are;

- a) To localise the emergency, and, if possible, eliminate it
- b) To minimise the effects of the disaster on people and property

Emergency plans are separate for on-site and off-site matters, but that should be consistent to each other.

On-site emergency plan includes the following issues;

- a) Formulation of the plan and of emergency services
- b) Alarm and communication mechanisms
- c) Appointment of personnel and definition of duties
- d) Emergency control centres
- e) Voluntary organisations
- f) Action on site
- g) Rehearsing emergency procedures
- h) Plan appraisal and updating

An off-site emergency plan will include the detailed information on following aspects;

- a) Organisation – details of command structure, warning systems, implementation procedures, emergency control centres, details of the key officers.
- b) Communications – identification of personnel involved, communication centre, call signs, networks, list of telephone numbers, etc.
- c) Specialised emergency equipment
- d) Specialised knowledge
- e) Meteorological information
- f) GIS based database
- g) Humanitarian arrangements
- h) Public information
- i) Assessment

Legal and Techno-Legal Framework

- a) **Disaster Management Act** – All the states have been advised to enact Disaster Management Acts to provide for adequate powers for authorities co-ordinating mitigation, prevention, preparedness, and response measures required to be undertaken.
- b) **Disaster Management Code** – All the states have been advised to build disaster management codes by drawing up disaster management and mitigation plans as well as elements of preparedness apart from response and relief.