

7th Social Science Lesson 19 Notes in English

19] Natural Hazards – Understanding Of Disaster Management In Practice

Introduction:

Everyday almost all the newspapers and television news channels carry reports on Natural hazards and disasters that occurred in several parts of the world. Neither all the hazards nor all the disasters can be preventable but the destruction can be minimized.

For better understanding, we must know, what is a Natural Hazard? What is a Disaster? What is Disaster Management and so on? Let us learn about some important terminologies along with disaster management techniques.

Hazard:

Generally, a hazard is a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury, health impacts, property damage, loss of livelihoods, services, social and economic disruption or environmental damage. Natural hazards are natural phenomenon that might have negative impact on human or the environment. Natural hazards are classified into two broad categories: Geophysical and biological.

Disaster:

A disaster can be generally defined as “A serious disruption in the society causing widespread material, economic, social or environmental losses which exceed the ability of the affected society to cope using its own resources”. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.

Hazards are termed as Disasters when they cause widespread destruction of property and human lives.

Example:

Hurricane is a natural hazard. It develops at sea. When it reaches land and destroys buildings and kills people, it can be described as a disaster.

Types of Disasters:

	Types of Disaster	Sources	Events
1.	Natural Disasters	Beneath the Earth Surface	Earthquakes, tsunamis and volcanic eruptions.
		On the Earth Surface	Landslides and Avalanches

		Meteorological / Hydrological	Windstorms, Tornadoes, Hailstorms and Floods.
		Health	Epidemics
2.	Man-made Disaster	Socio-technical	Technological, Transportations disasters, Structural collapse and production failures.
		Warfare	National and International.

Natural Disasters:**Earthquake:**

A sudden movement (or) trembling of the earth crust is called as earthquake. The movement of the tectonic plates, mass wasting, landslides, surface fault, etc., causes earthquake.

Effects:

Due to a strong earthquake, loss of lives, buildings, roads, bridges and dams are damaged. Earthquake cause floods, tsunamis, landslides, fires, break down of water supply and electrical lines. It may change the course of a river too.



Effect of Earth Quakes

Recent hazard in India and Tamilnadu:

On 2nd to 3rd May 2018 a high velocity dust storms swept across the parts of North India and more than 125 people died and over 200 were injured. In Uttar Pradesh 43 died in the city of Agra and about 30 died other parts of the state. In neighbourhood of Rajasthan state 35 people died and over 200 were injured. The wind downed more than 8000 electricity posts and uprooted hundreds of trees.

After 2004 tsunami, cyclone Gaja is the worst natural disaster to hit Tamilnadu. It left a trail of destruction in several coastal districts and took a toll on agriculture to a serious extent.



Destruction of Cyclone Gaja



Dust storms swept across the parts of North India

Tsunami:

When earthquake jolts the ocean floor, the sudden dislocation of the sea bed occurs and the resulting displacement of water can produce one or more huge, destructive waves, known collectively as a Tsunami. The sea waves rise to several meters and may reach the coast within a few minutes.

Effects:

It causes flooding and disrupts transportation, power communication and water supply.



Flood:

Sudden overflow of water in a large amount caused due to heavy rainfall, cyclone, melting of snow, Tsunami or a dam burst.

Effects:

1. Loss of life and property.
2. Displacement of people.
3. Spread of contagious diseases such as Cholera and Malaria etc.,

**Cyclone:**

A low-pressure area which is encircled by high pressure wind is called a cyclone.

Effects of cyclone:

The main effects of tropical cyclone include heavy rain, strong wind, large storm surges near landfall and tornadoes.

**Effects of cyclone**

"Severe cyclonic storm Gaja crossed the coasts of Tamilnadu and Puducherry around Vedaranyam and Nagapattinam in the early hours of November 10, 2018 Friday with wind speed gusting of around 120 (Kmph)" reported the Indian Meteorological Department.

**Effects of Storm Gaja in Nagapattinam****Man-made Disasters:****Stampede:**

The term stampede is a sudden rush of a crowd of people, usually resulting in injuries and death from suffocation and trampling. It is believed that most major crowd disasters can be prevented by simple crowd management strategies. Human stampedes can be prevented by organization and traffic control, such as barriers, following queues and by avoiding mass gathering.

Fire:

Fire is a disaster caused due to electrical short circuit, accidents in chemical factory, match and crackers factory. Fire involves 3 basic aspects

1. Prevention.
2. Detection.
3. Extinguishing.



Forest fire in hilly regions



Fire accidents in Cracker Factories

Public awareness of what to do before fire, during fire and after fire is of critical importance.

Industrial Disaster:

Industry faces multiple risks involved with its production, transportation, storage, usage and disposal of the effluents containing residuals and hazardous materials from nuclear and chemical industries.

Example: Bhopal gas leakage,

What is Disaster Management?

The systematic process of applying administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster is called Disaster Management.

Disaster Management is necessary or expedient for:

- Prevention.
- Mitigation.

- Preparedness.
- Response.
- Recovery.
- Rehabilitation.

Disaster Management Cycle or Disaster cycle:

The six disaster management phases that have been used in the concept of disaster cycle are as follows



Pre – Disaster Phase:

Prevention and Mitigation:

Reducing the risk of disasters involves activities, which either reduce or modify the scale and intensity of the threat faced or by improving the conditions of elements at risk. The use of the term reduction to describe protective or preventive actions that lessen the scale of impact is therefore preferred. Mitigation embraces all measures taken to reduce both the effects of the hazard itself and the vulnerable conditions to it, in order to reduce the scale of a future disaster.

In addition to these physical measures, mitigation should also be aimed at reducing the physical, economic and social vulnerability to threats and the underlying causes for this vulnerability. Therefore, mitigation may incorporate addressing issues such as land ownership, tenancy rights, wealth distribution, implementation of earthquake resistant building codes etc.

Preparedness:

The process includes various measures that enable governments, communities and individuals to respond rapidly to disaster situations to cope with them effectively. Preparedness includes for example, the formulation of viable emergency plans, the development of warning systems, the maintenance of inventories, public awareness and education and the training of personnel. It may also embrace search and rescue measures as well as evacuation plans for areas that may be “at risk” from a recurring disaster. All preparedness planning needs to be supported by appropriate rules and regulations with clear allocation of responsibilities and budgetary provision.

Early Warning:

This is the process of monitoring the situation in communities or areas known to be vulnerable to slow onset hazards, and passing the knowledge of the pending hazard to people harmless way. To be effective, warnings must be related to mass education and training of the population who know, what actions they must take, when warned.

The Disaster Impact:

This refers to the “real-time event of a hazard occurrence and affecting elements at risk. The duration of the event will depend on the type of threat; ground shaking may only occur in a matter of seconds during an earthquake. Where as flooding may take place over a longer sustained period.

During Disaster Phase:**Response:**

This refers to the first stage response to any calamity, which include setting up control rooms, putting the contingency plan in action, issue warning, action for evacuation, taking people to safer areas, rendering medical aid to the needy etc., simultaneously rendering relief to the homeless, food, drinking water, clothing etc. to the needy, restoration of communication, disbursement of assistance in cash or kind. The emergency relief activities undertaken during and immediately following a disaster, which includes immediate relief, rescue, and the damage needs assessment and debris clearance.

The Post- Disaster Phase:**Recovery:**

Recovery is used to describe the activities that encompass the three overlapping phases of emergency relief, rehabilitation and reconstruction.

Rehabilitation:

Rehabilitation includes the provision of temporary public utilities and housing as interim measures to assist long-term recovery.

Reconstruction:

Reconstruction attempts to return communities with improved pre-disaster functioning. It includes replacement of buildings; infrastructure and lifeline facilities so that long-term development prospects are enhanced rather than reproducing the same conditions, which made an area or population vulnerable.

Development:

In an evolving economy, the development process is an ongoing activity. Long-term prevention/disaster reduction measures like construction of embankments against flooding, irrigation facilities as drought proofing measures, increasing plant cover to reduce the occurrences of landslides, land use planning, construction of houses, capable of withstanding the onslaught of heavy rain/wind speed and shocks of earthquakes are some of the activities that can be taken up as part of the development plan.

Let us see in detail about a few disaster management measures that are in practice in India.

Why mitigating the Hazards essential?

It is more cost-effective to mitigate the risks from natural disasters than to repair damage after the disaster. Hazard mitigation refers to any action or project that reduces the effects of future disasters.

Warning System in India:

Department of Science and Technology (DST) Department of Space (DOS) and CSIR Laboratories have set up early warning system for tsunami and storm surges in the Indian Ocean.

Disaster Management in India:

National Disaster Management Authority, abbreviated as NDMA, is an agency of the Ministry of Home Affairs whose primary purpose is to coordinate response to natural or man-made disasters and for capacity-building in disaster resiliency and crisis response. NDMA was established through the Disaster Management Act enacted by the Government of India on 23rd December 2005.

The National Disaster Response Force (NDRF) is a specialized force constituted for the purpose of specialist response to a threatening disaster situation or disaster under the Disaster Management Act, 2005.

National Institute of Disaster Management (NIDM) is a premier institute for training and capacity development programs for managing natural disasters in India, on a national as well as regional basis.

Disaster Management in Tamil Nadu:

- Tamil Nadu State Disaster Management Authority (TNSDMA) is responsible for all measures for mitigation, preparedness, response, and recovery are undertaken under the guidance and supervision of the Authority.
- Tamil Nadu State Disaster Response Force (SDRF) has been constituted with a strength of 80 Police Personnel. They have been trained in disaster management and rescue operations in consultation with National Disaster Response Force (NDRF).

- District Disaster Management Authority (DDMA) is responsible for Disaster Management at district level.

State Disaster Management plan:

The perspective plan – 2018 -2030 prepared by the Revenue and Disaster Management Department.

Hot line between Indian Meteorological Department and the State Emergency Operation Centre is established and mitigation in the District is done through telephone, fax and IP phones also available which connect the State with District Head Quarters, Taluks and Blocks of the State. Wireless radio network with both high frequency and very high frequency are also available in the State.

General Survival Techniques:

- During the earthquake be under the table, chair, kneel to the floor and protect yourself. Go near a sturdy wall, sit on the floor and hold the floor strongly and protect yourself.
- Use only torch lights.
- During flood forecast, store up necessary things like first aid. Listen to the local Radio / TV for instructions. Cut off all the electrical supplies during flood and earthquake.
- In case of fire accidents dial 101 for fire service.
- If clothes are on fire, "Don't Run; Stop, Drop and Roll".
- Road accidents can be avoided by permitting the persons only who have license are allowed to drive. Learn, preach and practice safety rules during walking and driving along the road.
- Rail Safety Tips: Stay alert. Trains can come from either directions at any time.
- Never sit on the edge of the Station Platform.
- Cross the tracks safely.
- While on boarding the Air craft, pay attention to the flight crew safety demonstration, and read the safety briefing card available in the seat pocket carefully.

Wrap up:

- ❖ Both the hazard and the disaster cause enormous physical damage to property and even make huge loss of life.
- ❖ Disaster management refers to conservation of lives and property during a natural or man-made disaster.
- ❖ Preparation, Mitigation, Preparedness, Response, Recovery and Development are the six Disaster management cycles.
- ❖ The state and the central government have various disaster management organisations.
- ❖ Earthquake, Tsunami, Flood Cyclone are some of the natural disaster.
- ❖ Fire and Industrial accidents are few man-made disasters.
- ❖ If any accidents occur dial 100 for Police, 101 for Fire service and 108 for the Ambulance.

❖ If clothes are fire “Don’t Run, Stop, Drop and Roll”.

Glossary:

1.	A dangerous event	Hazard
2.	An event which causes enormous damage to property and life	Disaster
3.	Severity	Vulnerability
4.	Reduce (or) make something less severe	Mitigate
5.	Forecasting of weather	Meteorology
6.	Shaking or vibration	Trembling
7.	Stop something before it happens	Preventive
8.	To stop a fire or light	Extinguish
9.	A serious, or dangerous situation	Emergency
10.	Mental or emotional state of a person	Psychological

DO YOU KNOW?

The word “Tsunami” is derived from the Japanese word. “Tsu” means harbour and “nami” means waves.