

Unit 8

DISASTER MANAGEMENT



LEARNING OBJECTIVES

At the end of this chapter, the student should be able to

- ❖ define disaster
- ❖ list out the types of disaster
- ❖ explain the phases of disaster management
- ❖ enumerate the natural calamities.
- ❖ describe about disaster nursing
- ❖ analyse the epidemiologic surveillance and disease control
- ❖ discuss the role of nurses in disaster preparedness
- ❖ brief legal implication in disaster management.



திருக்குறள்:

வெள்ளத் தனைய இரும்பை அறிவுடையான்
உள்ளத்தின் உள்ளக் கெடும்.

விளக்கம்:

வெள்ளம் போல் அளவற்றதாய் வரும் துன்பமும், அறிவுடையவன் தன் உள்ளத்தினால் அத் துன்பத்தின் இயல்பை நினைத்த அளவில் கெடும்.

EXPLANATION:

A flood of troubles will be overcome by the (courageous) thought which the minds of the wise will entertain, even in sorrow.

8.1 INTRODUCTION

Disaster is any occurrence that causes ecology disruption, loss of human life, and deterioration of health services on a scale sufficient to warrant an extraordinary response from outside the community area.

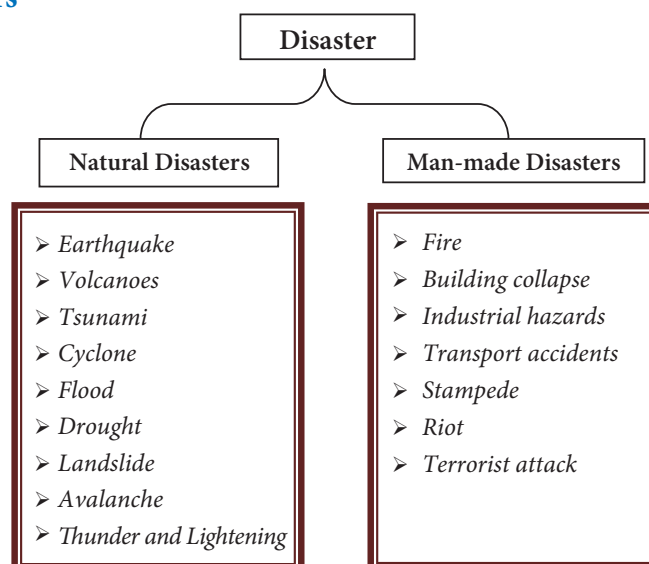
Disaster occurs suddenly and unexpectedly, disrupting the normal life and infrastructure of social services including health care system.

8.1.1 Definition

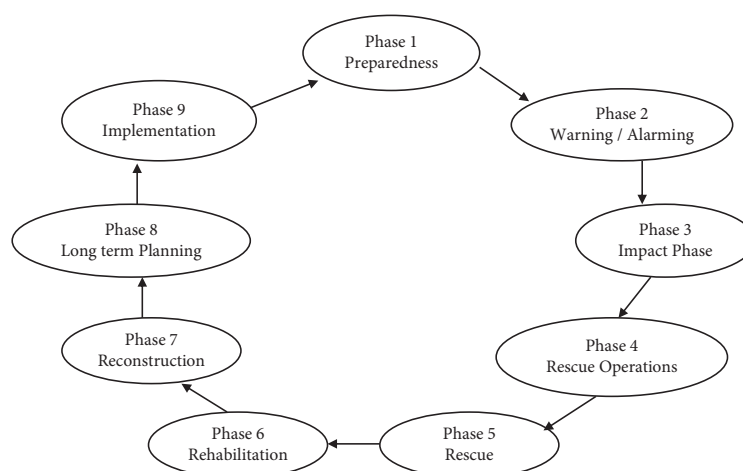
A disaster is a serious disruption of the function of a community or a society involving widespread human, material, economic or environmental loss and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Disaster Alphabetically means
D- destruction
I-incident
S-suffering
A-administrative and financial failure
S-sentiments
T-tragedies
E-eruption of communicable diseases
R-research programme and implementation.

8.1.2 Types of Disasters



8.2 PHASES OF DISASTER MANAGEMENT



8.2.1 Natural Calamities

Flood

When excess of water overflows, it submerges land and destroys everything that get in its way. This is called flood. Flood usually caused when the volume of water within a lake, river, or other body of water exceeds the total capacity of the body. Sometimes level rise and causes it overflow its channel.



Floods are the most common natural disaster in India

What to do before hand

While town planning it is the government's responsibility, individuals should find about risks in the area where they are living e.g. people who live in areas down stream from a dam should know the special signals when a dam threatens to break. Forecasting of floods or tidal waves is very difficult, but hurricanes and cyclones often occur at the same time of the year when particular vigilance must be exercised. They are often announced several hours or days before they arrive.

8.2.2 During Flood

- Turn off the electricity to reduce the risk of electrocution.
- Protect people and property (as soon as the flood begins, take the vulnerable group,

children, the old, sick and the disabled to an upper floor)

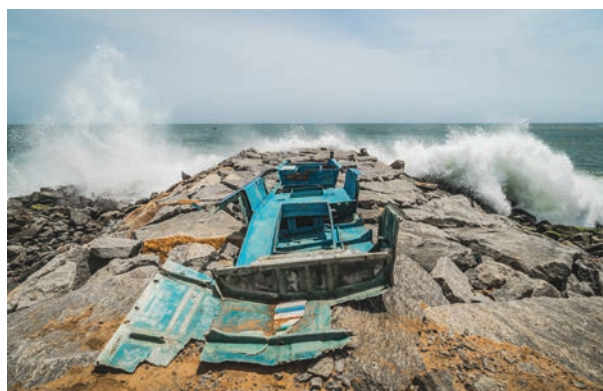
- Whenever possible, move personal belonging upstairs or go to raised shelters provided for use in floods.
- Beware of water contamination if the taste, colour or smell of the water is suspicious. It is vital to use some means of purification.
- Evacuate denser zones as ordered by the local authorities.

After a flood

When a flood is over, it is important, people do not return home until that told by local authorities, who will have ensured that buildings have not been undermined by water. From then on it is essential to;

- Wait until the water is declared safe before drinking.
- Clean and disinfect any room that has been flooded.
- Sterilize or wash with boiling water all dishes and kitchen utensils.
- Get rid of any food that has been in or near the water including canned foods and any food kept in refrigerators and freezers.
- Get rid of all consumables (drinks, medicines, cosmetics, etc.,)

8.2.3 Earthquakes





Earthquake is one of those type of natural disaster that strike without an early warning signal. An earthquake is the result of the sudden break within the uppercrust of the earth, which may also break the surface and lead to the vibration of the ground.



The world's largest earthquake with an instrumentally documented magnitude occurred on May 22nd 1960 near Valdivia in Southern Chile. It was assigned a magnitude of 9.5

What to do before hand

- Build in accordance with urban planning the regulations for risk areas.
- Ensure that all electrical and gas appliance in the house together with all pipes connected to them are firmly fixed.
- Avoid storing heavy objects and materials in high altitude.
- Hold family evacuation drills and ensure that the whole family knows what to do in case of an earthquake.
- Prepare a family emergency kit.

During an Earthquake

- Keep people calm – do not get panic.
- People who are indoors should stay there but move to the central part of the building.
- Keep away from the stairs, which might collapse suddenly.
- People who are outside should be away from buildings and collapsing walls and away from electric cables.
- Anyone in a vehicle should park it, away from bridges and buildings.

After an Earthquake

- Check if you or anyone else is hurt. Use first-aid for cuts and bruises.
- Keep the streets clear for emergency services.
- Switch off all appliances like the refrigerator, Television or Radio
- Turn off the gas (LPG).
- Wear shoes to protect your feet from debris.
- A battery-operated radio will help you to get important messages.
- Be prepared for more shocks.



Earthquakes occur most frequently in plate boundaries.

8.2.4 Fire Accident

A fire is defined as undesirable event which emits heat, smoke and or flame, which has the potential to cause damage either mechanical or manmade.

Some of the causes are:

1. Cooking equipment
2. Heating
3. Smoking in bedrooms
4. Candles
5. Curious Children
6. Faulty wiring
7. Flammable liquids
8. Ignorance, carelessness, faulty handling, indifference and recklessness of people



Effects of Fire Accidents

- Destroying houses, wildlife habitat and timber
- Polluting the air
- Permanently damages the human or animal's respiratory system and cause death

Precautions

- Keep all fires and heaters well guarded. Especially open fires.
- Keep open fires away from furniture's and curtains
- Do not smoke in the bedroom
- Never leave a pan unattended when deep frying because many fire starts in the kitchen
- If there are children around keep matches and lighters out of reach
- Fit approved smoke detectors and smoke alarm on each floor
- Plan an escape route
- If you suspect a gas leak, open the windows and turn off the supply

During

- React as soon as you hear the smoke alarm
- Safely exit through doors
- Protect yourself from smoke inhalation
- Stop, drop and roll if your clothes catch fire
- Call for help
- Use fire extinguishers to control the fire
- Don't stay and search for pets and belongings
- Never use an elevator to exit a building during the fire

After

- Cool off as soon as possible with water for first and second degree burns
- Don't break the blisters. Don't try to remove the adhere clothes from the burnt area
- Visit the nearby hospital

8.2.5 Clouds of Toxic Flames



What to do before hand

People in risk area should

- Find out the evacuation plans and facilities
- Familiarize themselves with the alarm signals used in case of an emergency
- Equip doors and windows with the tightest possible fastenings
- Prepare family emergency kit

During an Emergency

- Do not use the telephone, leave lines free for rescue services
- Listen to the messages given by radio and other media
- Carry out the instructions transmitted by radio or loudspeaker
- Close doors and windows
- Stop up air intakes
- Seal any cracks or gaps around windows and doors with adhesive tape
- Organize a reserve of water
- Turn off ventilators and air conditioners

After an Emergency

- Comply with the authorities' instructions and do not let go out until there is no longer any risk
- Carry out necessary decontamination



The Bhopal disaster also referred to as Bhopal gas tragedy was a gas leak incident on early morning of 2nd December 1984 at the Union Carbide India Limited (UCIL) pesticide plant in Bhopal, Madhya Pradesh, India. It was the world's worst industrial disaster.

Deaths – 3,787
Non fatal injuries – 5,58,125

8.3 DISASTER NURSING

It is the adaptation of professional nursing knowledge, skills and attitude in recognising and meeting the nursing and medical needs of disaster victims.

8.3.1 Basic Principles in Planning for Disaster Nursing

- N – Nursing plan should be integrated and coordinated
- U – Update physical and psychological preparedness
- R – Responsible for organising, teaching and supervision
- S – Stimulate community participation
- E – Exercise competence

8.3.2 START- Simple Triage Rabid treatment

- Those who are beyond help
- The injured who can be helped by

- The injured whose transport can be
- Those with injuries who need help less urgently

8.3.3 Epidemiologic Surveillance and disease control

- Implement as soon as possible all public health measures
- Organise a reliable disease reporting system
- To identify outbreaks and promptly initiate control measures
- Investigate all reports of disease outbreak rapidly

Vaccination - Health authorities are often under considerable public and political pressure to begin mass vaccination program usually against typhoid, cholera and tetanus.

Nutrition

- Assessing the food supplies after the disaster
- Assessing the nutritional needs of the affected population
- Calculating daily food rations and need for the larger population group
- Maintaining the nutritional status of the affected population

Protection Measures

- Water supply, priority of ensuring water availability in emergency situation, chlorination it is the best way of disinfecting water.
- Restrict access to people and animal if possible erect fence and appoint a guard
- Ensure adequate excreta disposal at a safer distance from water source
- Prohibit bathing, washing and animal



Priority	Colour of the tag	Condition
First (Immediate)	Red	Life threatened. have a high probability of survival
Second (Intermediate)	Yellow	Seriously injured Can delay treatment and transport for 2 hours
Third (waiting)	Green	Walking wounded Can delay transport 3 hours
Low priority	Black	Expectant, died victims, severely injured 100%

husbandry up-stream of intake points in rivers and streams

- Upgrade wells to ensure that they are protected from contamination
- Estimate the maximum yield of wells and if necessary ration the water supply
- All water tankers should be cleaned and disinfected before transporting water

Basic Sanitation and personnel hygiene

Many communicable diseases are spread through faecal contamination of drinking water and food. Hence every effort should be made to ensure the sanitary disposal of excreta. Emergency latrines should be made available to the displaced, where toilet facility have been destroyed, washing, cleaning and bathing facility should be provided to the displaced persons.

Vector Control

Vector borne diseases should be intensified in the emergency and rehabilitation period, especially in areas where such disease are known to be endemic. Special concerns are Dengue

fever and Malaria, Leptospirosis and rat bite fever, typhoid and plaque. Flood water provides chance for breeding opportunities for mosquitos.

8.3.4 Role in disaster preparedness

- Facilitate preparedness
- Initiate and update disaster plan
- Provide educational programme in specific area
- Organize disaster drills (mass drills)
- Provide updated record
- Educate the vulnerable population
- Nurse should seek safe environment
- Assess the environmental hazard
- Understand the community resources
- Physical readiness
- Professional readiness
- Community readiness.



8.4 CORE EMERGENCY PREPAREDNESS

The term emergency refers to any extraordinary event or situation that requires



an intense, rapid response and that can be addressed with existing community. Effective emergency response refers well-orchestrated team work in which each member knows what the lines of authority and communication are.

■ Required Elimination

1. Includes preparedness and response plans for relevant emergencies and threats (Natural, mechanical, biological and human)
2. Address the needs of visitors, structures and staff.
3. How to protect, evacuate and recover collection is the event of a disaster.
4. Assign individual responsibilities for implementation during the emergencies.
5. Include flood plan.

8.5 REHABILITATION

Rehabilitation, reconstruction and sustainable recovery refer to measures that help restore the livelihood assets and production levels of emergency-affected communities. These measures rebuild essential infrastructure, institutions, services and restore the means of production destroyed or made non-operational by a disaster.

Post disaster response has been typically at three (now four) levels.

Relief: Immediately after the calamity, lasting from the first 24 hours to about two to three months and catering to immediate shelter, food, water and medical assistance.

Reconstruction: Following relief and extending to a period of approximately two years, aimed at rebuilding the basic physical infrastructure and shelter to enable people to begin fresh start.

Rehabilitation: That looks at more long-term inputs of reinstating lost livelihoods, introducing new economic opportunities and improving land and water management processes so as to reduce people's vulnerability and enhance capacities to handle future calamities.

Readiness: A response which should ideally have been a proactive measure, it should enhance preparedness in identified vulnerable regions by introducing mechanisms and methods of construction that mitigate impacts of future disasters. Reconstruction and rehabilitation need to be in a seamless continuum with restoration efforts.

8.6 LEGAL IMPLICATION

Ethical and Legal Aspects of Disaster Response. Incorporation of ethical principles and legal standards into all phases of the disaster cycle is fundamental to effective and fair disaster response, but the complex information landscape makes meeting this goal challenging

8.6.1 Acts and Laws

The **Disaster Management Act, 2005**, was passed by the Rajya Sabha on 28 November, and by the Lok Sabha on 12 December 2005. It received the assent of The President of India on 9 January 2006. The Disaster Management Act, 2005 has 79 sections in set of 11 chapters. The Act extends to the whole of India. The Act provides for the effective management of disasters and for matters related with it.

The act provides formation of the following to combat disaster:

- National Disaster Management Authority



- State Disaster Management Authority
- District Disaster Management Authority

8.6.2 National Policy on Disaster Management (NPDM), 2009

Came into force October 22, 2009. The policy aims to have a safe and disaster resilient India. It provides for developing a proactive, holistic, multi-disaster facet and technology driven strategy through a culture of

- Preparedness
- Prevention
- Mitigation
- Response

As in National Policy on Disaster Management (NPDM), 2009, Central response follows two types of reliefs to Disaster Management. They are:

The primary relief functions of the Central Government are concerned with:

- Forecasting and operation of warning system
- Maintenance of uninterrupted communication
- wide publicity to warnings of impending calamity, disaster preparedness and measures through TV, AIR and Newspapers
- Transport with particular reference to evacuation and movement of essential commodities and petroleum products etc.

The secondary relief functions of the Central Government would relate to:

- flood inflow forecasts from the Central water Commission
- Relief, rehabilitation and restoration through military aid to civil authorities

- Contingency plans for crops, cattle preservation nutrition and health measures
- Technical and technological inputs for provision, drinking water etc.

8.6.3 Disaster Emergency Kit

When a natural disaster occurs, we can't always rely on police or government to provide help. The grocery stores might be so badly damaged that you can't go into it. The supplies in the store might be quickly depleted or you may not be able to get to the store.

The six basic supplies you need in a disaster kit are:

- Water, Food, First aid supplies
- Clothing, bedding and sanitation supplies, tools and special items

Water

- You should have a three-day supply of water on hand, or about one gallon per day per person
- If your water is not already treated with chlorine, add some household bleach to the bottles. It should be stored in a cool, dark place for no longer than six months

Food

- Put aside atleast three-days worth of food in your disaster kit that is non-perishable and don't need refrigeration
- Also, choose foods that don't need heating. Avoid foods with a high salt content as they will make you thirsty
- Foods that are recommended are Candy, chocolate, tea, coffee, Sugar, salt, pepper,

canned juice, milk, soup, canned fruits, meat, vegetables, Peanutbutter, jelly, food for babies and food for pets.



STUDENT'S ACTIVITY

Prepare the "Disaster management kit"



STUDENT'S ACTIVITY

Match the following:

A	B
1. Any extraordinary event or situation that requires an intense, rapid response	a) Manmade disasters
2. A proactive measure to enhance preparedness in vulnerable region	b) Forecasting and operation of warning signs
3. Building collapse and terrorist activity	c) Emergency
4. Primary relief function	d) Natural disasters
5. Earthquake and Tsunami	e) Readiness

CONCLUSION

Disaster is a serious disruption of the function of a community or a society involving widespread human, material and economical loss. There are various natural calamities like flood, earthquake, fire accident, cloud of toxic flames and Disaster Management can be defined as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters. Disaster

nursing is the professional knowledge, skill and attitude in meeting the nursing medical needs of disaster victims. Epidemiological surveillance comprised vaccination of disaster victim, nutrition supplies after disaster, provide basic sanitation and vector control. Rehabilitation measures included relief, reconstruction, readiness after the disaster devastation. Disaster management ensure disaster prevention, risk and vulnerability reduction, as a means of reducing the impact of disasters on society.

A-Z GLOSSARY

Earthquake (நிலநடுக்கம்)	-	An earthquake is the result of the sudden break within the upper crust of the earth, which may also break the surface and lead to the vibration of the ground.
Disaster Nursing (பேரிடர் செவிலியம்)	-	It is the adaptation of professional nursing knowledge, skills and attitude in recognizing and meeting the nursing and medical needs of disaster victims.
Relief (நிவாரணம்)	-	It is the measure taken immediately after the calamity, lasting from the first 24 hours to about two to three months and catering to immediate shelter, food, water and medical assistance.
Reconstruction (மறுசீரமைப்பு)	-	It is a period of approximately two years, aimed at rebuilding the basic physical infrastructure and shelter to enable people to begin afresh.
Rehabilitation (மறுவாழ்வு)	-	It is the long-term inputs of reinstating lost livelihoods, introducing new economic opportunities and improving land and water management processes.
Readiness (தயார்நிலை)	-	It is a proactive measure to enhance preparedness in identified vulnerable regions by introducing mechanisms and methods of construction that mitigate impacts of future disasters.



EVALUATION



I. Choose the correct answer:

- Which of the following is **not** the natural disaster?
 - Tsunami
 - Deforestation
 - Cyclone
 - Lightening
- The trembling of the earth's crust is known as
 - volcano
 - earthquake
 - Flood
 - cyclone
- Which of the following is a man-made disaster
 - Volcano
 - Land slide
 - Flood
 - Terrorist attack
- The first phase of disaster management is
 - Long term planning
 - Preparedness
 - Impact Phase
 - Warning Phase
- Which of the following activities is covered by Disaster Management before, during or after a disaster?
 - Reconstruction and Rehabilitation
 - Mitigation
 - Emergency response
 - All the above

- In the future, which of the following is expected to increase the risk of flooding?
 - population growth
 - urbanisation
 - climate change
 - all of the above.

II. Write short answer for the following questions:

- What is disaster?
- What is natural disaster?
- What is manmade disaster?
- What are the phases of disaster management?
- What is Flood?
- Define Disaster management.
- What is mean by earthquake?
- What are all the management to be taken for fire accident?
- What is expansion for START?
- Mention phases of rehabilitation in disaster management.

III. Write short notes for the following questions:

- Write brief note on disaster management kit.
- Legal implication in disaster management.



IV. Answer the following questions in detail:

1. Explain about the phases of disaster management.
2. Write the management for flood.

WEBLINKS

- <https://en.wikibooks.org/>
- <https://en.wikipedia.org>
- <https://ndma.gov.in>
- <https://www.cambridge.org/>

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